PROPERTY OF
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3984 MILDE ST.
DENVER, COLORADO

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3924 MEADE ST.
DENVER, COLORADO

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a TV station, preferably with a test pattern.

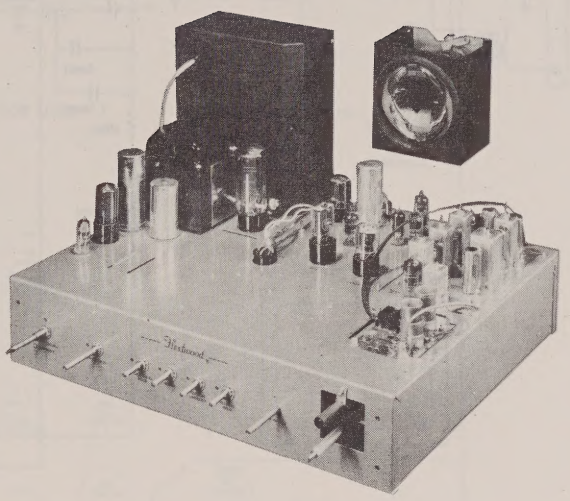
Set the horizontal hold control to the center of its range. Temporarily ground pin 1 (grid) of the horizontal mult. (6SN7GTA/V20) and adjust the horizontal frequency slug (B1) until the picture is nearly stationary. Remove the ground.

Connect the DC probe of a VTVM to pin 3 (cathode) of the horizontal output tube (6CD6GA/V21). Connect common to chassis. Adjust the horizontal linearity slug (B2) for MINIMUM voltage. Then turn B2 counter clockwise approximately 1½ turns.

Turn the horizontal drive trimmer (B3) counter clockwise until the picture gets SLIGHTLY narrow, with black edges showing on both sides of the raster. Readjust the horizontal frequency slug (B1), if necessary. Turn B3 clockwise until:

1. A white vertical bar or line appears near the center of the screen.
2. The picture falls out of sync.
3. Vertical elements of the picture such as door frames become wavy.

When any of these symptoms appear, turn B3 counter clockwise until they disappear. Adjust the width slug (B4) for a picture SLIGHTLY wider than necessary to fill the picture mask horizontally.



FLEETWOOD
MODEL 810B

TRADE NAME	Fleetwood Model 810B
MANUFACTURER	Conrac Inc., Glendora, Calif.
TYPE SET	Television Receiver
TUBES	Twenty-five
POWER SUPPLY	110-120 Volts AC, 60 Cycle RATING 235 Watts, 2.1 Amp. @ 117 Volts AC
TUNING RANGE	Channels 2 thru 13 VHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier)

SERVICING IN THE FIELD

TUNER OSCILLATOR ADJUSTMENTS

Touch-up adjustment of the VHF oscillator is possible by removing the channel selector and fine tuning knobs. Set the fine tuning at the center of its range. The adjustments are accessible, one at a time, as the channel selector is rotated. Adjust for best picture and sound.

SPECIAL ADJUSTMENTS

A. AGC
Observe the picture and advance the AGC control to a point where the picture distorts or a buzz is heard in the sound. Back off from this setting until the picture becomes stable with no noise in the sound.

B. Focus
The focus may be varied by means of a screw in the focus magnet. Using a non-ferrous screwdriver adjust the screw in or out for best focus.

HORIZONTAL OSCILLATOR FIELD ADJUSTMENTS

For adjustment of the horizontal oscillator, it is necessary to remove the rear cover and supply power to set. Set the horizontal hold at the center of its range and adjust the horizontal frequency slug (B1) until the picture synchronizes horizontally. (For location, see tube placement chart).

SOUND IF DETECTOR BUZZ ADJUSTMENT

To eliminate sound IF detector buzz, adjust the ratio detector secondary (A15) located on top of chassis.

FUSES

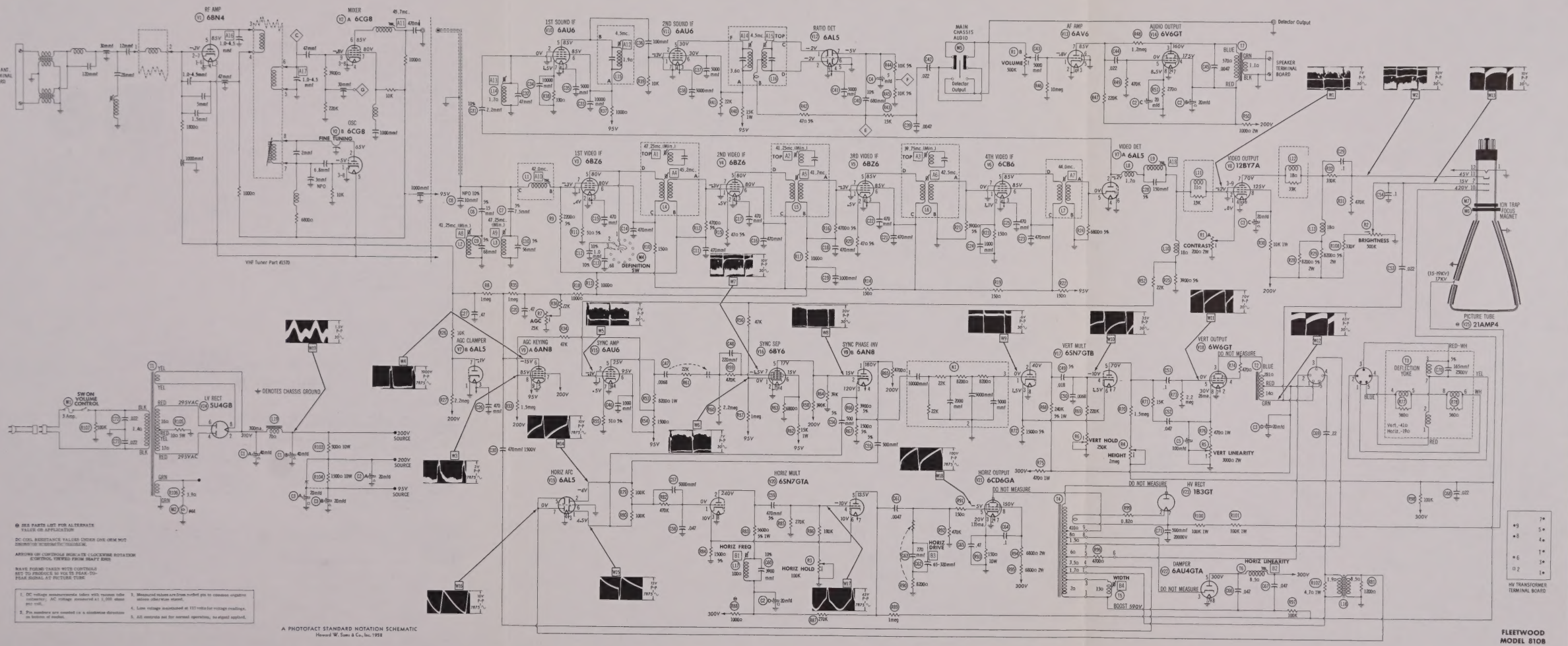
One fuse is used for LV power supply protection. (For location, see tube placement chart).

CENTERING

Centering is accomplished mechanically by means of a centering arm. Adjust the arm from side to side, and up and down until the picture is properly centered.

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

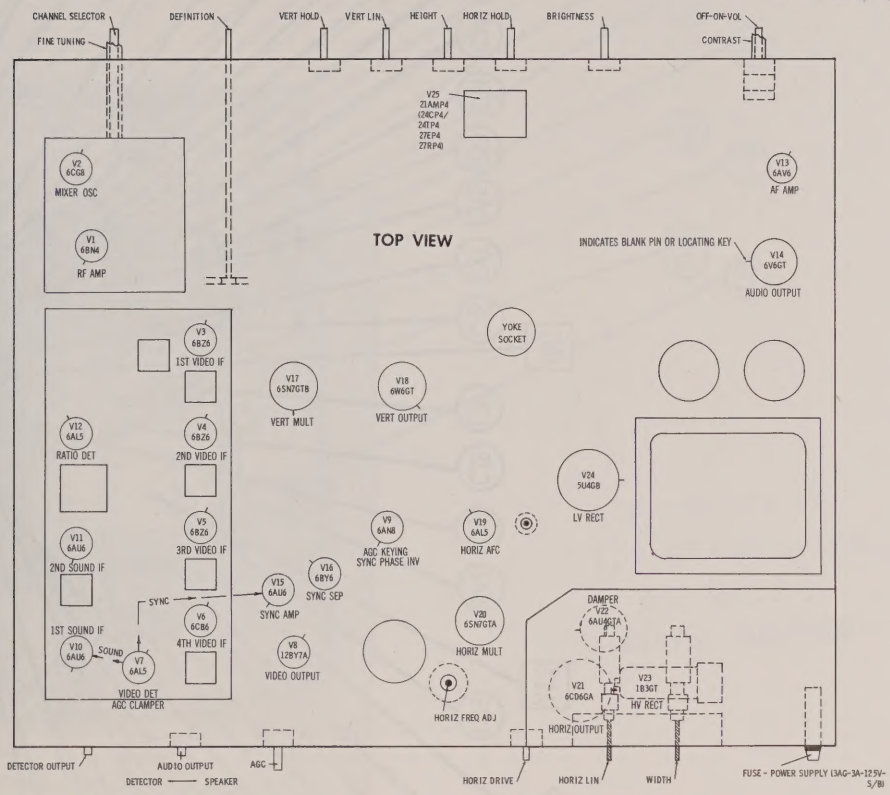
The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1958 Howard W. Sams & Co., Inc., Indianapolis 5, Indiana. Printed in U.S. of America



A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958

TUBE PLACEMENT CHART

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO



TUBE FAILURE CHECK CHART

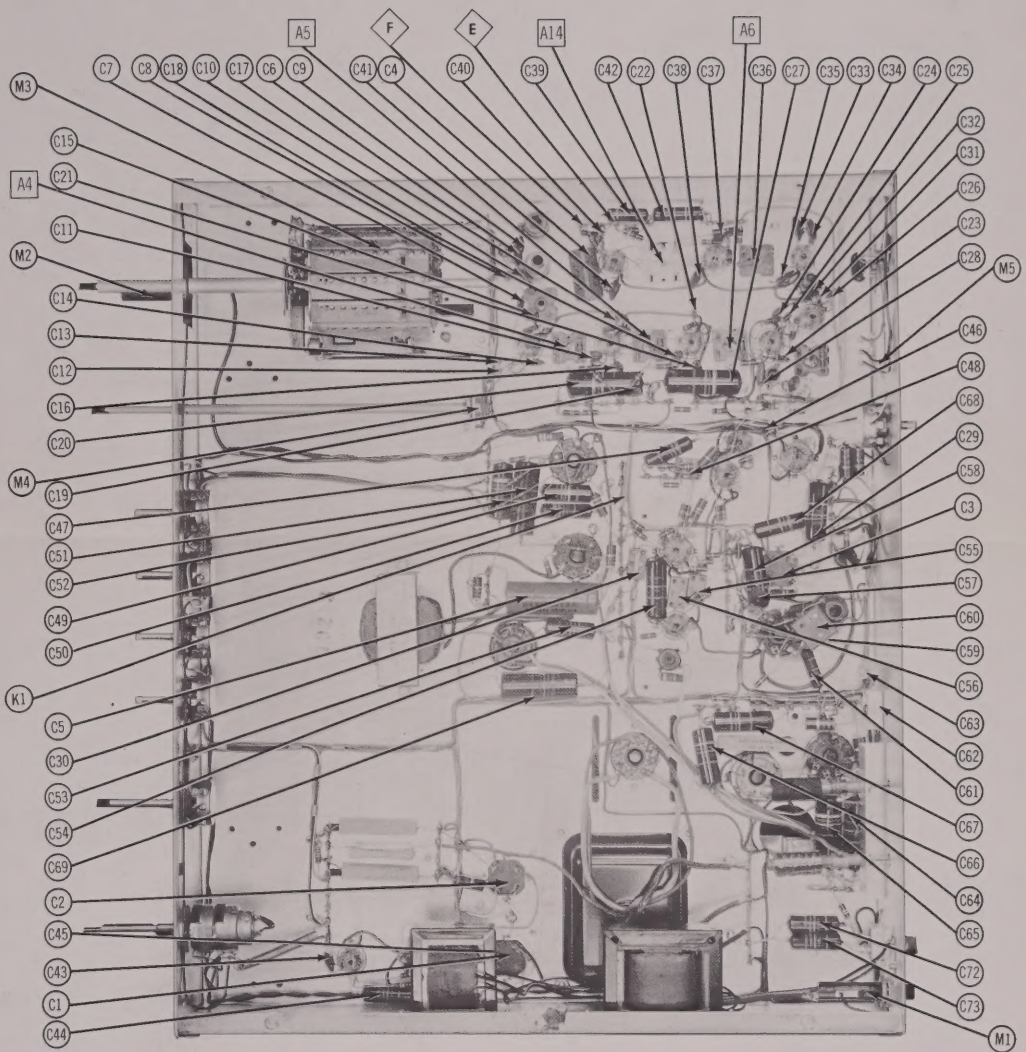
The following chart lists tubes whose failures are most likely to produce the indicated symptoms. Refer to tube placement chart for location and type of tube.

POWER SUPPLY FAILURE
No raster, no sound - **Fuse (M1), V24**

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster - **V3, V4, V5, V6, V7**
No pic, no sound, has snow - **V1, V2, V3, V7**
No pic, has sound, has raster - **V8, V25**
Has pic, no sound - **V10, V11, V12, V13, V14**
Overloaded picture - **V9**

SYNC FAILURE
No vert. sync - **V15, V16, V9**
No horiz. sync - **V15, V16, V9, V19**
No vert. or horiz. sync - **V15, V16, V9**

SWEEP FAILURE
No raster, has sound - **V19, V20, V21, V22, V23, V25**
No vertical deflection - **V17, V18**
Poor vert. linearity or foldover - **V17, V18**
Poor horiz. linearity or foldover - **V20, V21, V22**
Narrow picture - **V20, V21, V22, V24**
Vert. off freq. - **V17**
Horiz. off freq. - **V20**



CHASSIS BOTTOM VIEW-CAPACITOR AND ALIGNMENT IDENTIFICATION

ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

The high voltage lead should be securely taped and kept away from the chassis.
Allow a 20 minute warm-up period for the receiver and test equipment.

VIDEO IF ALIGNMENT

Set definition switch to center position.
Connect the negative lead of a 3 volt bias supply to point (A). Positive to chassis.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough generator output to provide a usable indication on VTVM.
Use only enough sweep generator output to provide a usable pattern on scope.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	.001mfd	High side to pin 1 (grid) of 6BZ6 (V3). Low side to chassis.	Not used	47.25MC (Unmod)	Any non-interfering channel	USE VTVM DC probe thru 47K to point (B). Common to chassis.	A1	Adjust for MINIMUM deflection.
2.	"	"	"	41.25MC	"	"	A2	"
3.	"	"	"	39.75MC	"	"	A3	"
4.	"	"	"	45.2MC	"	"	A4	Adjust for maximum deflection.
5.	"	"	"	41.7MC	"	"	A5	"
6.	"	"	"	42.5MC	"	"	A6	"
7.	"	"	"	44.0MC	"	"	A7	"
8.	"	"	45.0MC (10MC Swp)	39.75MC 41.25MC 42.0MC 43.5MC 45.0MC 45.75MC 47.25MC	"	Vert. Amp. thru 47K to point (B). Low side to chassis.		Check for response curve similar to Fig. 1. If necessary, retouch A1 thru A7 SLIGHTLY for desired response.
9.	"	High side to point (C). Low side to chassis.	Not used	41.25MC	"	USE VTVM. DC probe thru 47K to point (B). Common to chassis.	A8	Connect the negative lead of a 3 volt bias supply to point (D). Positive to chassis. Adjust for MINIMUM deflection.
10.	"	"	"	47.25MC	"	"	A9	"
11.	"	"	"	42.0MC	"	"	A10	Adjust for maximum deflection.
12.	"	"	"	45.7MC	"	"	A11	
13.	"	"	45.0MC (10MC Swp)	45.75MC	"	Vert. Amp. thru 47K to point (B). Low side to chassis.		Check for response curve similar to Fig. 2 with definition switch in all three positions. If necessary, retouch A10 and A11 for desired results, particularly with definition switch in "soft" position.

SOUND IF ALIGNMENT

Station signal may be used in place of signal generator.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
14.	.005mfd	High side to point (B). Low side to chassis.	4.5MC (Unmod)	Any non-interfering channel	DC probe to pin 7 (plate) of 6AL5 (V12). Common to chassis.	A12, A13, A14	Adjust for maximum deflection.
15.	"	"	"	"	DC probe to point (E). Common to point (F).	A15	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

OSCILLATOR ALIGNMENT

Set the fine tuning to the center of its range. The adjustments are accessible, one at a time, as the channel selector is rotated. The oscillator slugs are reached thru a hole in the front of the tuner. Rotate slug clockwise until sound interference appears in the picture, then turn slug counter clockwise until interference (sound) just disappears.

FIG.1

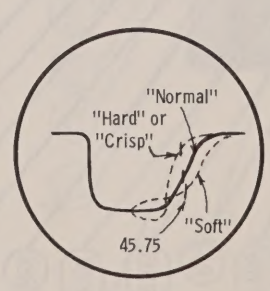


FIG.2

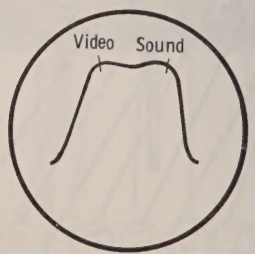


FIG.3

ALIGNMENT INSTRUCTIONS (cont)

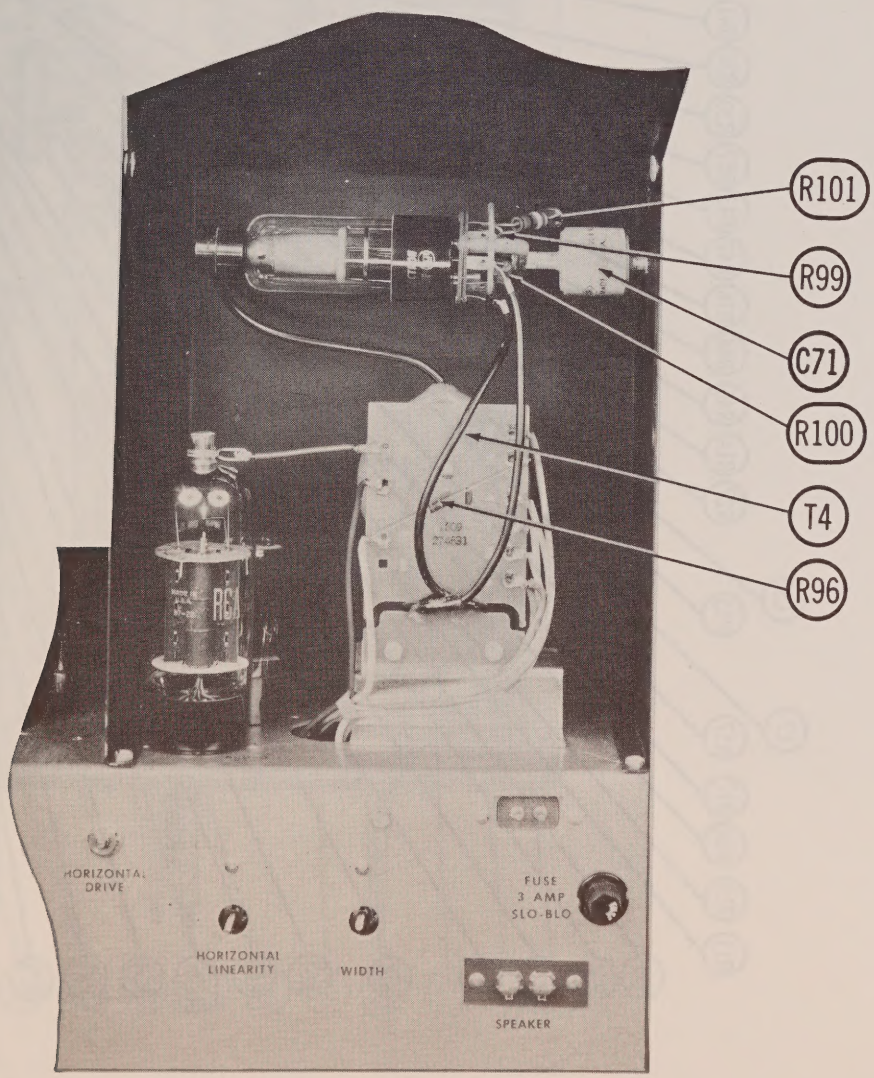
RF AND MIXER ALIGNMENT

Connect the negative lead of a 3 volt bias supply to point Ⓓ. Positive to chassis.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide a usable pattern on scope.
Use 10MC sweep unless otherwise noted.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
16.	Two 150Ω Carbon Resistors	Across antenna terminals with 150Ω in each lead.	207MC	205.25MC 209.75MC	12	Vert. Amp. thru 10K to point Ⓖ. Low side to chassis.	A16, A17	Adjust for response curve similar to Fig. 3 with markers above 90%.
17.	"	"	213MC	211.25MC 215.75MC	13	"		Check for response similar to Fig. 3. If markers fall below 70% on any channel, make compromise adjustments of A16 and A17 with channel switch set to that channel. Check all other channels to see that they have not been seriously affected.
			201MC	199.25MC 203.75MC	11			
			195MC	193.25MC 197.75MC	10			
			189MC	187.25MC 191.75MC	9			
			183MC	181.25MC 185.75MC	8			
			177MC	175.25MC 179.75MC	7			
			85MC	83.25MC 87.75MC	6			
			79MC	77.25MC 81.75MC	5			
			69MC	67.25MC 71.75MC	4			
			63MC	61.25MC 65.75MC	3			
			57MC	55.25MC 59.75MC	2			

4.5MC TRAP ALIGNMENT

Tune in a TV station and turn fine tuning counter clockwise until sound interference can be seen in the picture. Adjust A18 for MINIMUM interference.



HIGH VOLTAGE COMPARTMENT

PROPERTY OF
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3924 MEADE ST.
DENVER, COLORADO

CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION

FLEETWOOD
MODEL 810B

FOLDER 1

RESISTANCE MEASUREMENTS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6BN4	0Ω	1meg	0Ω	.1Ω	†3000Ω	0Ω	1meg		
V2	6CG8	10K	†8800Ω	0Ω	0Ω	.1Ω	†3000Ω	†12K	0Ω	220K
V3	6BZ6	•30K	51Ω	.1Ω	0Ω	†2600Ω	†2600Ω	0Ω		
V4	6BZ6	•30K	47Ω	.1Ω	0Ω	†2450Ω	†2450Ω	0Ω		
V5	6BZ6	•30K	47Ω	.1Ω	0Ω	†2300Ω	†2300Ω	0Ω		
V6	6CB6	.1Ω	150Ω	.1Ω	0Ω	†2150Ω	†2150Ω	0Ω		
V7	6AL5	0Ω	3900Ω	.1Ω	0Ω	.1Ω	0Ω	†1meg		
V8	12BY7A	•95Ω	3900Ω	0Ω	0Ω	0Ω	.1Ω	†4700Ω	†10K	0Ω
V9	6AN8	†5200Ω	35K	5400Ω	.1Ω	0Ω	1meg	†500Ω	†50K	†2000Ω
V10	6AU6	1.7Ω	0Ω	.1Ω	0Ω	†3000Ω	†3000Ω	330Ω		
V11	6AU6	10K	0Ω	.1Ω	0Ω	†17K	†17K	0Ω		
V12	6AL5	INF	INF	0Ω	.1Ω	0Ω	0Ω	20K		
V13	6AV6	10meg	0Ω	.1Ω	0Ω	0Ω	0Ω	†170K		
V14	6V6GT	TP	0Ω	†2000Ω	†1500Ω	470K	NC	.1Ω	270Ω	
V15	6AU6	26K	0Ω	0Ω	.1Ω	†11K	†2000Ω	51Ω		
V16	6BY6	65K	0Ω	0Ω	.1Ω	†45K	†5500Ω	2.7meg		
V17	6SN7GTB	60K	†240K	1500Ω	•420K	•‡2.7meg	1500Ω	.1Ω	0Ω	
V18	6W6GT	NC	.1Ω	†770Ω	†1200Ω	2.2meg	NC	0Ω	2100Ω	
V19	6AL5	INF	INF	.1Ω	0Ω	8.5Ω	0Ω	8.5Ω		
V20	6SN7GTA	INF	†6700Ω	1500Ω	•125K	†200K	1500Ω	.1Ω	0Ω	
V21	6CD6GA	NC	Ω	150Ω	NC	470K	NC	.1Ω	†13K	TOP CAP ‡8Ω
V22	6AU4GTA	NC	NC	¶	NC	†8.5Ω	NC	0Ω	.1Ω	
V23	1B3GT	PINS 1 THRU 8 HAVE INFINITE RESISTANCE								TOP CAP ‡418Ω
V24	5U4GB	NC	¶	NC	17Ω	NC	16Ω	NC	¶	
V25	21AMP4	0Ω	•75K	PIN 10 ‡100K	PIN 11 185K	PIN 12 .1Ω				

¶ THIS READING CAN VARY GREATLY, (10K MINIMUM), DUE TO THE CONDTION OF THE ELECTROLYTIC CAPACITOR CONNECTED IN THE ASSOCIATED CIRCUIT.

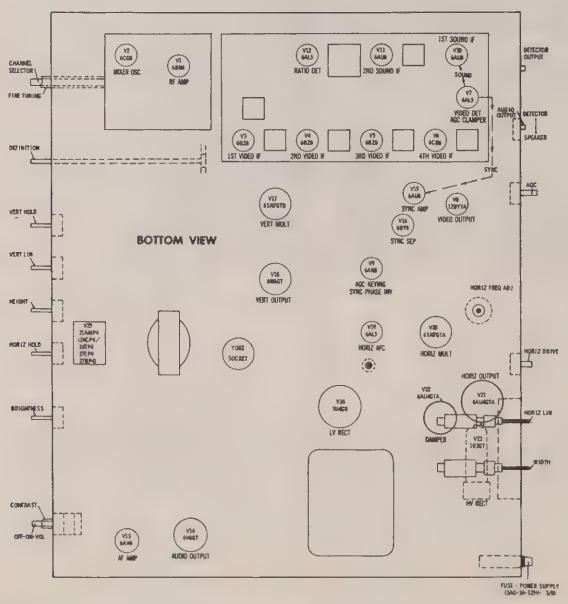
• THIS READING WILL VARY. CONTROL SET FOR NORMAL OPERATION.

† MEASURED FROM 300V SOURCE.

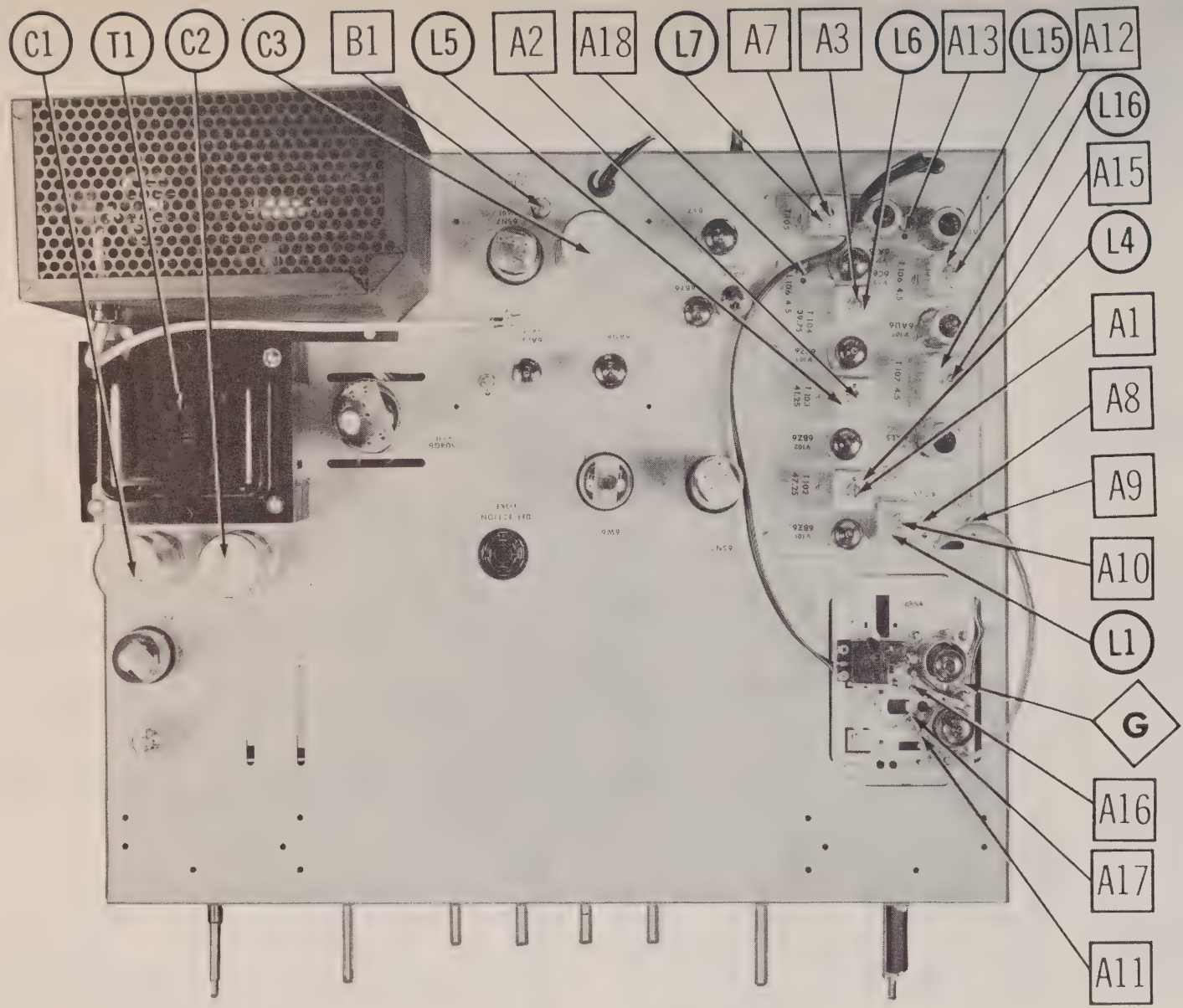
‡ MEASURED FROM PIN 3 OF V22.

NC NO CONNECTION.

TP TIE POINT.



TUBE PLACEMENT CHART



CHASSIS TOP VIEW

MODEL 810B

FLEETWOOD

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No	USE	TYPE	NOTES
V1	RF Amplifier	6BN4	
V2	Mixer-Osc	6C68	
V3	1st Video IF Amp	6BZ6	
V4	2nd Video IF Amp	6BZ6	
V5	3rd Video IF Amp	6BZ6	
V6	4th Video IF Amp	6CB6	
V7	Video Det - AGC Clamper	6AL5	
V8	Sync Amp	12BY7A	
V9	AGC Keying- Sync Phase Inv.	6AN8	
V10	1st Sound IF Amp.	6AU6	
V11	2nd Sound IF Amp.	6AU6	
V12	Ratio Det	6AL5	
V13	AF Amp.	6AV8	
V14	Audio Output	6V6GT	
V15	Sync Amp	6AU8	
V16	Sync Amp	6BY6	
V17	Vert Mult	6SN7GTB	
V18	Vert Output	6W6GT	
V19	Horiz AFC	6AL5	
V30	Horiz Mult	6SN7GTA	
V32	Horiz Output	6CM6A	
V33	Damper	6AU4GTA	
V23	HV Rectifier	1B3GT	
V24	LV Rectifier	5U4GB	

PICTURE TUBE

ITEM No	REPLACEMENT DATA: FLEETWOOD PART No.	GENERAL ELECTRIC PART No.	SYLVANIA PART No.	NOTES
V35	21AMP4	21ACP4	21AMP4	① Aluminized ② Silver screen "85"
		21ACP4A	21ACP4	
		21AMP4A ②	21ACP4A ②	
		21ABP4 ②		
	24CP4	24CP4	24CP4	
	24TP4	24CP4A ②		
		24VP4A	24TP4 ②	
		24GP4A ①		
	27EP4	27EP4 ①	27EP4 ②	
	27RP4	27RP4 ①	27RP4 ②	

ELECTROLYTIC CAPACITORS

ITEM No	RATING: CAP	VOLT	REPLACEMENT DATA: FLEETWOOD PART No	AEROVOX PART No.	CORNELL DUBILIER PART No.	MALLORY PART No	PYRAMID PART No	SANGAMO PART No	SPRAGUE PART No
C1A	40	475		AFH3-72	B0330	FP262	TMD-62	D-265	TVL-2830
B	40	475							
C2A	30	450		AFH4-87	D0530	FP444	TMQ-83	Q-340	TVL-4724.2
B	30	450							
C	30	25							
D	30	450							
C3A	30	450		AFH4-14	D0130	FP444	TMQ-12	Q-040	TVL-4763
B	30	450							
C	30	450							
D	30	450							
C4	5	50		PR50V5	BBR5-50	TC30	TD-5-50	MT-1504	TVA-1303
C5	100	50		PR50V100	BRU005	TC250U	TD-100-50	MTS-5010	TVA-1310

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP	VOLT	REPLACEMENT DATA: FLEETWOOD PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C6	15			NPO-DI 15	TCS-15	C10QL5C	TCO-15		5TCC-Q15	5%
C7	7.5									5%
C8	10			NPO-DI 10	TCS-10	C10Q5C	TCO-10	ZT-541	5TCC-Q	NPO 10%
C9	68			NPO-DI 68	TCS-68	C10Q68C	TCO-68		5TCC-Q68	5%
C10	56			NPO-SI 56	TCS-56	C10Q56C	TCO-56			5%
C11	470			BPD-00047	DD-471	BYA10T47	ED-470	UC-5340	5GA-T47	
C12	1.0			NPO-SI 1.0	TCZ-1.0	CTA5Y15C	TCO-1		5TCCD-V1	10%
C13	68				TCZ-68		TCO-.68	ZT-5675		10%
C14	470			BPD-00047	DD-471	BYA10T47	ED-470	UC-5347	5GA-T47	
C15	470			BPD-00047	DD-471	BYA10T47	ED-470	UC-5347	5GA-T47	
C16	470			BPD-00047	DD-471	BYA10T47	ED-470	UC-5347	5GA-T47	
C17	470			BPD-00047	DD-471	BYA10T47	ED-470	UC-5347	5GA-T47	
C18	470			BPD-00047	DD-471	BYA10T47	ED-470	UC-5347	5GA-T47	
C19	1000			BPD-008	DD-102	BYA8Z2	ED-1000	DC532	5HK-D1	
C20	47	200		P288N-47		CUB2P47		GEM-3047	5TM-P47	
C21	470			BPD-00047	DD-471	BYA10T47	ED-470	UC-5347	5GA-T47	
C22	470			BPD-00047	DD-471	BYA10T47	ED-470	UC-5347	5GA-T47	
C23	470			BPD-00047	DD-471	BYA10T47	ED-470	UC-5347	5GA-T47	
C24	1000			BPD-008	DD-102	BYA8Z2	ED-1000	DC532	5HK-D1	
C25	470			BPD-00047	DD-471	BYA10T47	ED-470	UC-5347	5GA-T47	
C26	470			BPD-00047	DD-471	BYA10T47	ED-470	UC-5347	5GA-T47	
C27	47	200		P288N-47		CUB2P47		GEM-3047	5TM-P47	
C28	150	400		1469-0015	TCZ-150	12R5T15	TCO-150	UC-5315	M3-315	10%
C29	1	400		P488N-1	DF-104	CUB4P1		GEM-4041	4TM-P1	
C30	470	1500			DD30-471	HVB30T47	HR5-470		15CAB-T47	
C31	2.2			NPO-SI 2.2	TCZ-2R2	CTA5Q23C	TCO-2.2		5TCCD-V22	10%
C32	47			BPD-000047	DD-470	L20Q47	ED-47	UC-5447	5GA-Q47	
C33	10000			BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C34	10000			BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C35	5000			BPD-005	DD-502	BYA10J5	ED-005	DC525	5HK-D5	
C36	100			SI 100	D8-101	LT6T1	GP-100	UC-521	5GA-T1	
C37	1000			BPD-008	DD-502	BYA10D6	ED-008	DC526	5HK-D6	
C38	5000			BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5	
C39	.0047	630		P488N-0047	D6-472	CUB6D47	GP-4700	GEM-6347	6TM-D47	
C40	680				D6-681	LE7T68	ED-680		M3-368	10%
C41	5000			BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5	
C42	.022	600		P488N-022	DD-303	CUB6S22	ED-02	GEM-6122	6TM-S22	
C43	5000			BPD-008	DD-503	BYA10D6	ED-005	DC526	5HK-D6	
C44	.022	600		P888N-022	DD-303	CUB6S22	ED-02	GEM-6122	6TM-S22	
C45	.0047	600		P888N-0047	D6-472	CUB6D47	GP-4700	GEM-6347	6TM-D47	
C46	1000			BPD-001	DD-103	BYA8Z4	ED-1000	DC531	5HK-S1	
C47	.0068	600		P488N-0068	D6-682	CUB6D68	GP-6800	GEM-6268	6TM-D68	
C48	220			1469-0022	D8-221	5W5T33	ED-220	UC-5323	1TM-S33	
C49	018	600								10%
C50	.0068	600		P888N-0068	D6-682	CUB6D68	GP-6800	GEM-6268	6TM-D68	
C51	1	600		P888N-1	DF-105	CUB6F1		GEM-601	6TM-F1	
C52	.047	600		P888N-047	DF-503	CUB6S47		GEM-6147	6TM-S47	
C53	.022	600		P888N-022	DD-303	CUB6S22	ED-02	GEM-6122	6TM-S22	
C54	1	600		P488N-1	DF-104	CUB4F1		GEM-401	4TM-F1	
C55	500			1464-0005		5R5T5	CY15C471K	MCE345	M8-35	5%
C56	500			1464-0005		5R5T5	CY15C471K	MCE345	M8-35	5%
C57	5000			BPD-008	DD-502	BYA10D5	ED-005	DC525	5HK-D5	
C58	.047	600		P888N-047	DF-503	CUB6S47		GEM-6147	6TM-S47	
C59	470			1464-0004?		5R5T47	CY15C471K		M8-347	5%
C60	3900			1464-0039		1R5D39			M3-239	10%
C61	.0047	600		P888N-0047	D6-472	CUB6D47	GP-4700	GEM-6347	6TM-D47	

CAPACITORS (cont)

ITEM No.	RATING: CAP	VOLT	REPLACEMENT DATA: FLEETWOOD PART No	AEROVOX PART No.	CENTRALAB PART No.	CORNELL DUBILIER PART No.	ERIE PART No.	MALLORY PART No	SPRAGUE PART No	NOTES
C62	65-329				1468-00027	D5-271	5WST27	ED-270		
C63	270				P888N-1	DF-104	CUB6P1		1FM-327	
C64	1	600			P288N-47		CUB4P1	GEM-601	6TM-P1	
C65	47	200			P888N-047	DF-503	CUB6S47	GEM-6147	6TM-P47	
C66	.047	600			P888N-047	DF-503	CUB6S47	GEM-6147	6TM-S47	
C67	.047	600			P888N-047	DF-503	CUB6S47	GEM-6147	6TM-S47	
C68	.022	600			P888N-022	DD-203	CUB6S22	ED-02	GEM-6122	6TM-S22
C69	22	400			P488N-22		CUB4P22	GEM-4022	4TM-P22	
C70	165	2500								5%
C71	500	20000			UV-502	TV-20	MMU2007S	413-1	HV20035A	20DK-T5
C72	.022	600			P888N-022	DD-203	CUB6S22	ED-02	GEM-6122	6TM-S22
C73	.022	600			P888N-022	DD-203	CUB6S22	ED-02	GEM-6122	6TM-S22

CONTROLS

ITEM No	RATING: RESISTANCE	WATTS	REPLACEMENT DATA: FLEETWOOD PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	200Ω	½(WW)	1628	F7-50			U513WS	Contrast
B	500K	½		R3-61		*	Not Req.	Volume
C	Switch			KB-1			Not Req.	
R2A	500K	½	1187	B-59	A47-500K-8	QU-133	U50	Brightness
B	Shaft			Not Req.	F8-3	Not Req.	Not Req.	
R3A	100K	½	1106	B-40	A47-100K-8	QU-138	U41	Horiz. Hold
B	Shaft			Not Req.	R8-3	Not Req.	Not Req.	
R4A	2Meg	½	1104	B-76	A47-2Meg-8	QU-139	U56	Height
B	Shaft			Not Req.	R8-3	Not Req.	Not Req.	
R5A	3000Ω	2(WW)	1105	WW-303	A43-3000	WP23000	B3000L	Vert. Linearity
B	Shaft			Not Req.	R8-3	Not Req.	D8-36	
R6A	250K	½	1107	B-80	A47-250K-8	QU-150	U46	Vert. Hold
B	Shaft			Not Req.	R8-3	Not Req.	Not Req.	
R7A	25K	½	1643	B-26	A47-25K-8	QU-130	U39	AGC
B	Shaft			Not Req.	F8B-1/4	Not Req.	Not Req.	

* Concentrikit Equivalent K-3 Kit, Base Elements & Shafts WU-100, P1-203 (Panel) S13-133, R1-230 (Rear) 78-1 (Switch)

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING: OHMS	WATT	FLEETWOOD PART No.	NOTES
R8	1meg			
R9	3200Ω 5%			
R10	150Ω			
R11	8Ω 5%			
R12	4700Ω 5%			
R13	1000Ω			
R14	150Ω			
R15	47Ω 5%			
R16	47000 5%			
R17	1000Ω			
R18	1000Ω			
R19	150Ω			
R20	47Ω 5%			
R21	3900Ω 5%			
R22	150Ω			
R23	150Ω			
R24	6800Ω 5%			
R25	3900Ω 5%			
R26	10K			
R27	2.2meg			
R28	82000Ω 5%	2		
R29	82000Ω 5%			
R30	10K	1		
R31	470K			
R32	330K			
R33	1.5meg			
R34	47K			
R35	22K			
R36	22K			
R37	1000Ω			Note 1
R38	330Ω			
R39	10K			
R40	15K	1		
R41	22K			
R42	4.7Ω 5%			
R43	15K			
R44	10K 5%			
R45	10K 5%			
R46	10meg			
R47	330K			
R48	1.2meg			
R49	470K			
R50	1000Ω	2		
R51	270Ω			
R52	33K			
R53	8200Ω	1		
R54	1500Ω			
R55	5.1Ω 5%			
R56	47K			
R57	1meg			
R58	390K			

ITEM No.	RATING: OHMS	WATT	FLEETWOOD PART No.	NOTES
R59	470K			
R60	2.2meg			
R61	22K			
R62	15K	1		
R63	68000			
R64	39K			
R65	4700Ω			
R66	3900Ω 5%			
R67	15000 5%			
R68	240K 5%	1		
R69	230K			
R70	1.5meg			
R71	15K			
R72	15000 5%			
R73	2.2meg			
R74	470Ω			
R75	470Ω	1		
R76	470Ω	1		
R77	560Ω			
R78	560Ω			
R79	100K			
R80	100K			
R81	12000			
R83	470K			
R83	56000 5%	1		
R84	15000 5%			
R85	270K			
R86	180K			
R87	270K			
R88	10000			
R89	1meg			
R90	8200Ω			
R91	150Ω			
R92	470K			
R93	150Ω	10		
R94	6800Ω	2		
R95	68000	2		
R96	4700Ω			
R97	100K			
R98	100K			
R99	0.82Ω			
R100	100K	1		
R101	100K	1		
R102	4.7Ω	1		
R103	5090	10		
R104	15000	10		
R105	10Ω	2		
R106	5.9Ω			
R107	100K			
R108	330K			

Note 1. Some versions use a 5600Ω in this application.

TRANSFORMER (POWER)

ITEM No	RATING: PRI.	SEC. 1	SEC. 2	SEC. 3	REPLACEMENT DATA: FLEETWOOD PART No.	Halldorson PART No	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117VAC	600VCT	5V	6.3V	1727		P-3056①	P-8338①	26R93	R-32BC ②
	② 2.1A	② .300A	② 3A	②12.6A						

① Parallel and phase 6.3V filament windings.

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No	USE	REPLACEMENT DATA: FLEETWOOD PART No	Halldorson PART No	Merit PART No	Ram PART No	Stancor PART No	Thordarson PART No	Triad PART No	NOTES
T2	Vert. Output	1598	21900 ①	A-2823 ①	V316 ②	VO-100	26S73	A-118X	
T3A	Yoke -Horiz (12MH)		DF606	MDF-91	Y90F12/47	DY-13A	Y-14	Y-40 &	
B	(90°) Vert (40MH)		③ 4	③	③	③	③	NW6	
T4	Horiz Output	1509	FB419 *	HVO-16 *	XO94 *	HO-256 *		D-50 *	
T5	Width Coil (3-23MH)	1058	RF800 ④⑤	MWC-11	25R2	WC-10 ⑦	WC-18 ⑤	WLC-6	
T6	Horiz. Linearity Coil (1.4-11MH)	1134	RF800 ④⑤	MWC-6 ⑤	20R15	WC-8	WC-22	WLC-5	

① Connect as autoformer.
② Drill new mounting hole(s).
③ Use original horizontal damping network, if necessary.
④ Connect horizontal damping network across #3 and #7.
⑤ Enlarge mounting hole.
⑥ Use terminals #1 and #2.
⑦ Use inner winding.
⑧ Use terminals #3 and #4.

*HORIZONTAL OUTPUT TRANSFORMER CONNECTION DATA

Use Original Width Coil Unless Replacement Type Is Listed

ORIGINAL TERMINAL CONNECTIONS	Halldorson Replacement Connections	Merit Replacement Connections	Ram Replacement Connections	Stancor Replacement Connections	Thordarson Replacement Connections	Triad Replacement Connections
9	9	9	9	9		9
8	7	7	7	7		7
7	5	5	5	5		5
5	NC See Note ③	NC See Note ③	NC See Note ③	NC See Note ③		NC See Note ③
4	4	4	T	4		T
T	T	T	T	T		T
3	3	3	3	3		3
1	1	1	1	1		1
Convert Width Coil Across	3 & 1	3 & 1	3 & 1	3 & 1		3 & 1
Special Notes →	③	②	③	③		③

③ Install new damping network consisting of 1000Ω, ½ watt in series with capacitor (C70) across horizontal yoke terminals #3 and #7.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE: PRI.	SEC.	REPLACEMENT DATA: FLEETWOOD PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T7	8000Ω	3-4Ω	867	Z1115 ①	A-2927 ①	A8114 ①	26S48	S-9Z	① Drill new mounting hole.

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA: FLEETWOOD PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	NOTES
L1	1st. Video IF	1671				
L2	41.25MC Trap	1674				
L3	47.25MC Trap	1675				
L4	2nd. Video IF	1676				Includes 47.25MC trap
L5	3rd. Video IF	1674				Includes 41.25MC trap
L6	4th. Video IF	1674				Includes 39.75MC trap
L7	5th. Video IF	1672				
L8	Resonant Choke	1248				64MC, 7.5 Microhenries
L9	4.5MC Trap	1717	30-1004	TV-151	1469 *	
L10	Shunt Peaking Coil	1316	19-4400	TV-302	6136	603 Microhenries
L11	Series Peaking Coil	1706	19-3125 ▲	TV-195 ▲	6153 ▲	127 Microhenries, wound on 16% resistor
L13	Series Peaking Coil	1703		TV-198 ♦	6130 ♦	277 Microhenries, wound on 33K resistor
L12	Shunt Peaking Coil	1704	19-3300	TV-200	6132	316 Microhenries
L14	1st. Sound IF	1079	17-3400	TV-151	1469 *	
L15	2nd. Sound IF	1078				
L16	Ratio Det.	966	17-1023	TV-110	1468	

* Disregard tap. ▲ Parallel with 15K resistor. ♦ Parallel with 33K resistor.

TRANSFORMER (HORIZ. OSC.)

ITEM No.	DC RES.: PRI.	SEC.	REPLACEMENT DATA: FLEETWOOD PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	Thordarson PART No.	NOTES
L17	100Ω		904	19-1876	TV-165	6210	H-103	HS-5	Horiz Freq. 16.8-50 Millihenries
L18	1.9Ω	8.5Ω	849						Horiz AFC

FILTER CHOKE

ITEM No.	RATINGS: TOTAL DIRECT CURRENT	D.C. RESISTANCE	INDUCTANCE (0 CURRENT 1000 ⁰/₀₀)	REPLACEMENT DATA: FLEETWOOD PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
L19	.300A	70Ω	3.5 Hy.	1056	C5287	C-2996	C-2334 ①	26C93	C-35A ①

① Drill new mounting hole.

COMPONENT COMBINATIONS

ITEM No	USE	DESCRIPTION	FLEETWOOD PART No	REPLACEMENT DATA	
K1	Vert. Integrator	10000mmf, 2000 mmf, 5000mmf, 5000mmf, 22K, 22K, 6200Ω, [redacted]		Aerovox Centralab Erie Sprague	PA-111 PC-101 1405-02 V-2

FLEETWOOD MODEL 810B

FOLDER 1

PARTS LIST AND DESCRIPTIONS (Continued)

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			FLEETWOOD PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M1	3AG	3A 125V S/B			313003. (3AG 3A 125V S/B)	342001	MDX 3	HKP

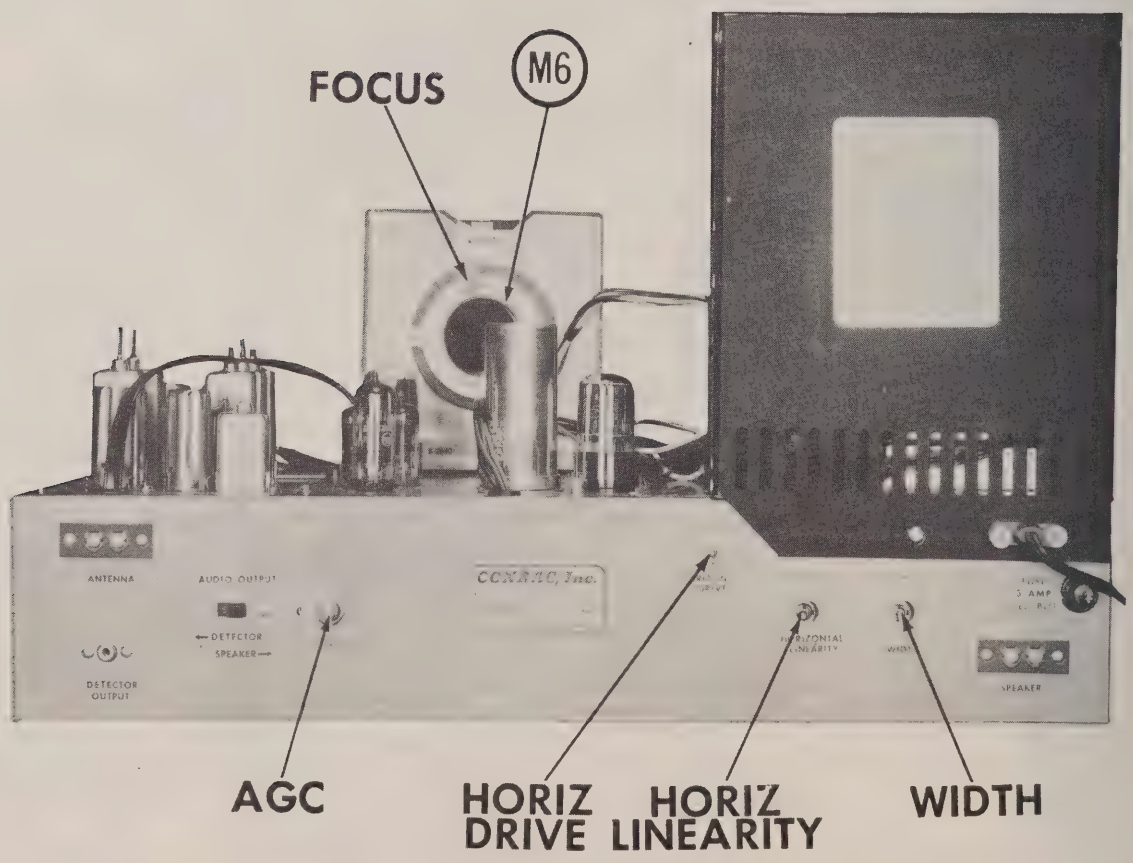
MISCELLANEOUS

ITEM No.	PART NAME	FLEETWOOD PART No.	NOTES
M2	Pilot Lamp		#44
M3	Tuner	1570	VHF
M4	Switch	1674	Definition, Rotary, wafer type
M5	Switch		Audio output-detector output, Slide type DPDT
M6	Magnet		Focus and centering
M7	Ion Trap		

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	1167	Channel Selector
Knob	1172	Fine Tuning
Knob	1169	On-off-volume
Knob	1168	Contrast
Knob	1170	Brightness, definition



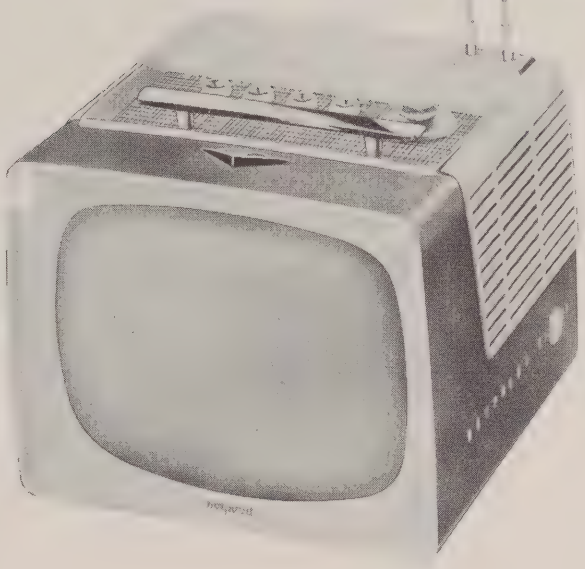
CHASSIS—REAR VIEW

PROPERTY OF
[illegible]

DISASSEMBLY INSTRUCTIONS

CHASSIS REMOVAL

1. Remove 6 push-on type knobs from the top.
2. Remove 3 metal screws and the rear cover.
3. Extend telescoping antenna.
4. Remove 3 chassis bolts from the bottom.
5. Remove 2 metal screws holding the chassis at the top.
6. Remove the picture tube socket and partially remove the chassis.
7. Remove the ion trap, yoke clamp, yoke, HV lead, 2 speaker leads and the chassis.



CAUTION NOTE

ONE SIDE OF AC LINE CONNECTED TO CHASSIS
Care should be exercised when connecting test equipment or physically contacting the chassis.

HOTPOINT MODELS
14S206, 14S207 (Q2 Line)

TRADE NAME	Hotpoint Models 14S206, 14S207 (Q2 Line)
MANUFACTURER	Hotpoint Co., 5600 W. Taylor St., Chicago 44, Ill.
TYPE SET	Television Receiver
TUBES	Fourteen
POWER SUPPLY	110-125 Volts AC, 60 Cycle RATING 120 Watts, 1.1 Amp. @ 117 Volts AC
TUNING RANGE	Channels 2 thru 13 VHF, 14 thru 83 UHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier)

SERVICING IN THE FIELD

TUNER OSCILLATOR ADJUSTMENT

Touch-up adjustment of the VHF oscillator is possible by removing the channel selector and fine tuning knobs. Set the fine tuning at the center of its range. The adjustments (located in a circle around the shaft) should be made in sequence from the highest to the lowest channel in the area.

PICTURE TUBE SAFETY GLASS CLEANING

Remove 2 metal screws from the bottom holding the front. Remove 2 metal screws holding front located under top edge. Pull front out at the bottom and remove. NOTE: Use only mild soap and water for cleaning.

FOCUS

Adjust the ion trap for the best focus consistent with maximum brightness.

HORIZONTAL OSCILLATOR FIELD ADJUSTMENTS

For adjustment of the horizontal oscillator, it is necessary to remove the rear cover and supply power to set. Set the horizontal hold at the center of its range and adjust the horizontal frequency slug (B1) until the picture synchronizes horizontally. (For location, see tube placement chart).

SOUND IF DETECTOR BUZZ ADJUSTMENT

To eliminate sound IF detector buzz, adjust the ratio detector secondary (A8) located on bottom of chassis.

FUSES

One fuse is used for LV power supply protection. (For location, see tube placement chart).

CENTERING

Centering is accomplished mechanically by adjusting two magnetic rings around the neck of the picture tube. Rotate the two rings around the neck of the tube until the picture is properly centered.

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

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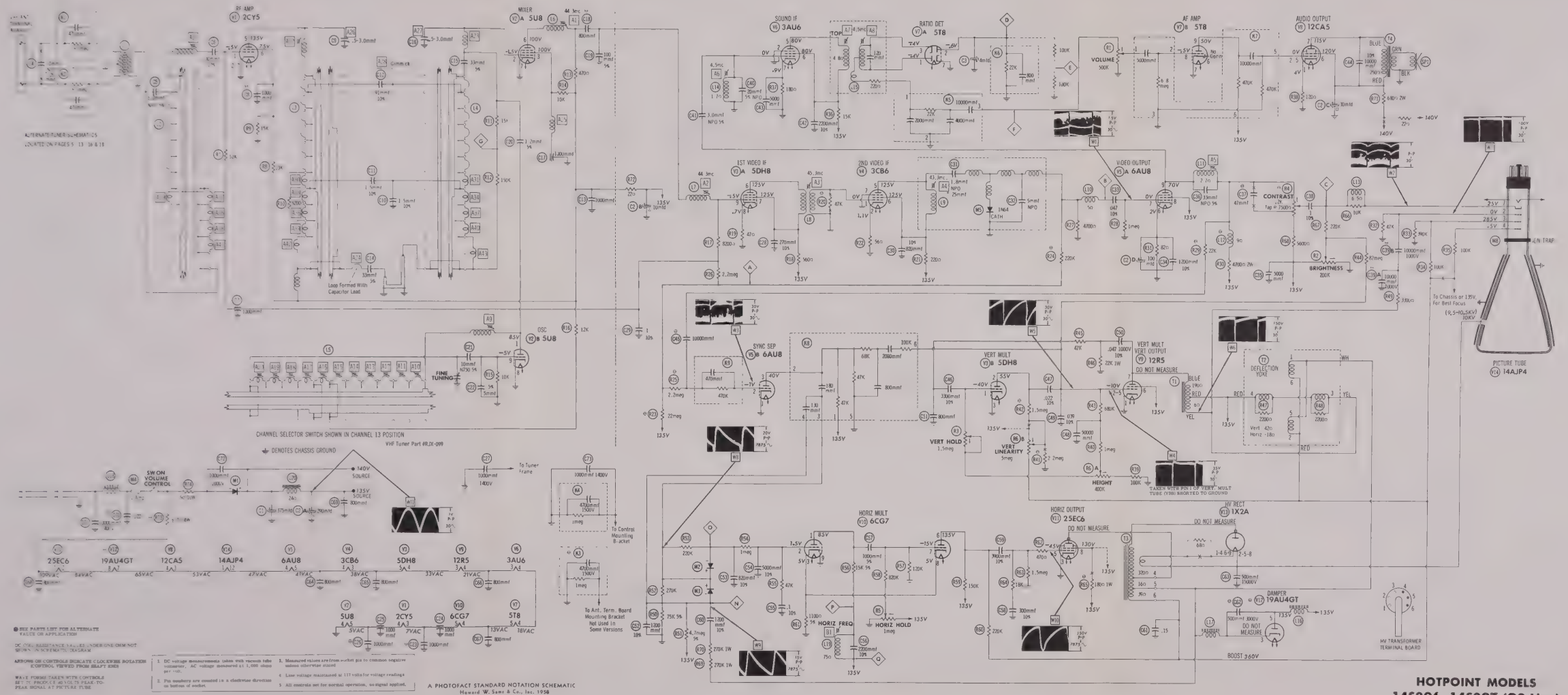


● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC VOLTAGE-RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION CONTROL VIEWED FROM SHAFT END

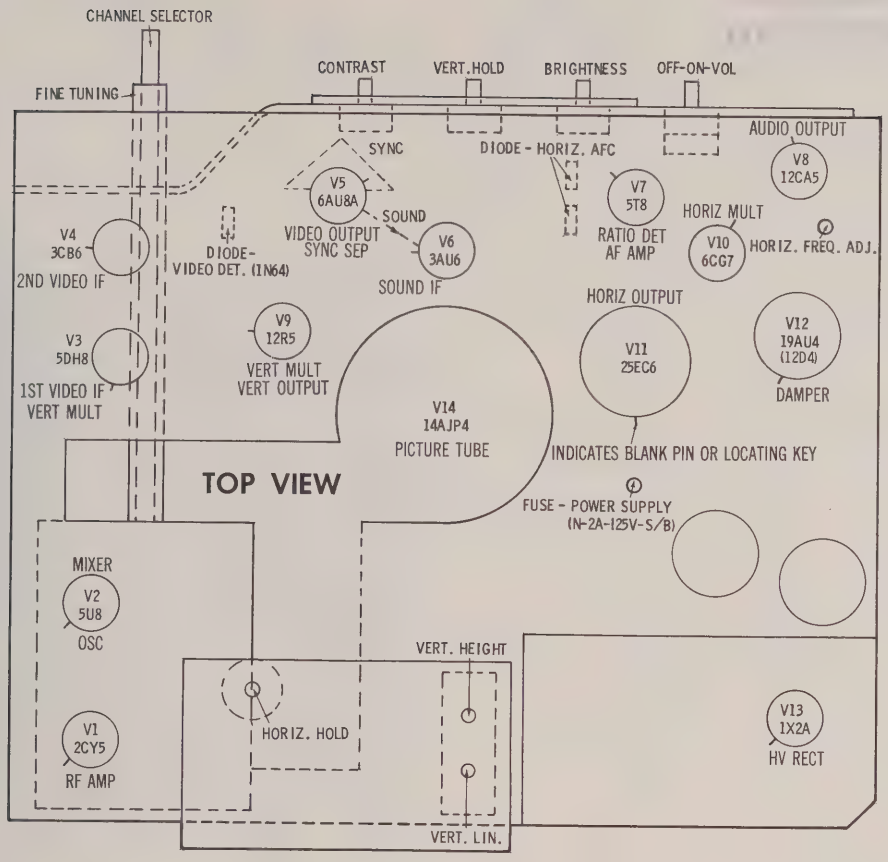
WAVE FORMS TAKEN WITH CONTROLS SET TO PRODUCE 40 VOLTS PEAK-TO-PEAK SIGNAL AT PICTURE TUBE

1. DC voltage measurements taken with vacuum tube voltmeter. AC voltage measured at 1,000 ohms per volt.
2. Pin numbers are counted in a clockwise direction on bottom of socket.
3. Measured values are from socket pin to common negative unless otherwise stated
4. Line voltage maintained at 117 volts for voltage readings
5. All controls set for normal operation, no signal applied.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958

HOTPOINT MODELS
14S206, 14S207 (Q2 Line)

TUBE PLACEMENT CHART



TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce the indicated symptoms. Refer to tube placement chart for location and type of tube.

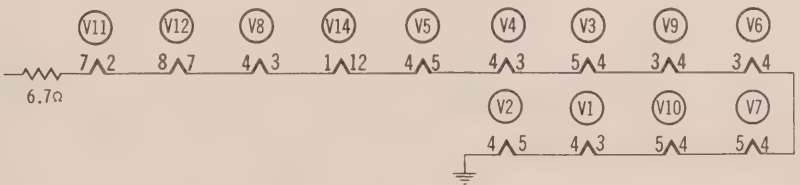
POWER SUPPLY FAILURE
No raster, no sound - **Fuse (M4), Rectifier (M1)**

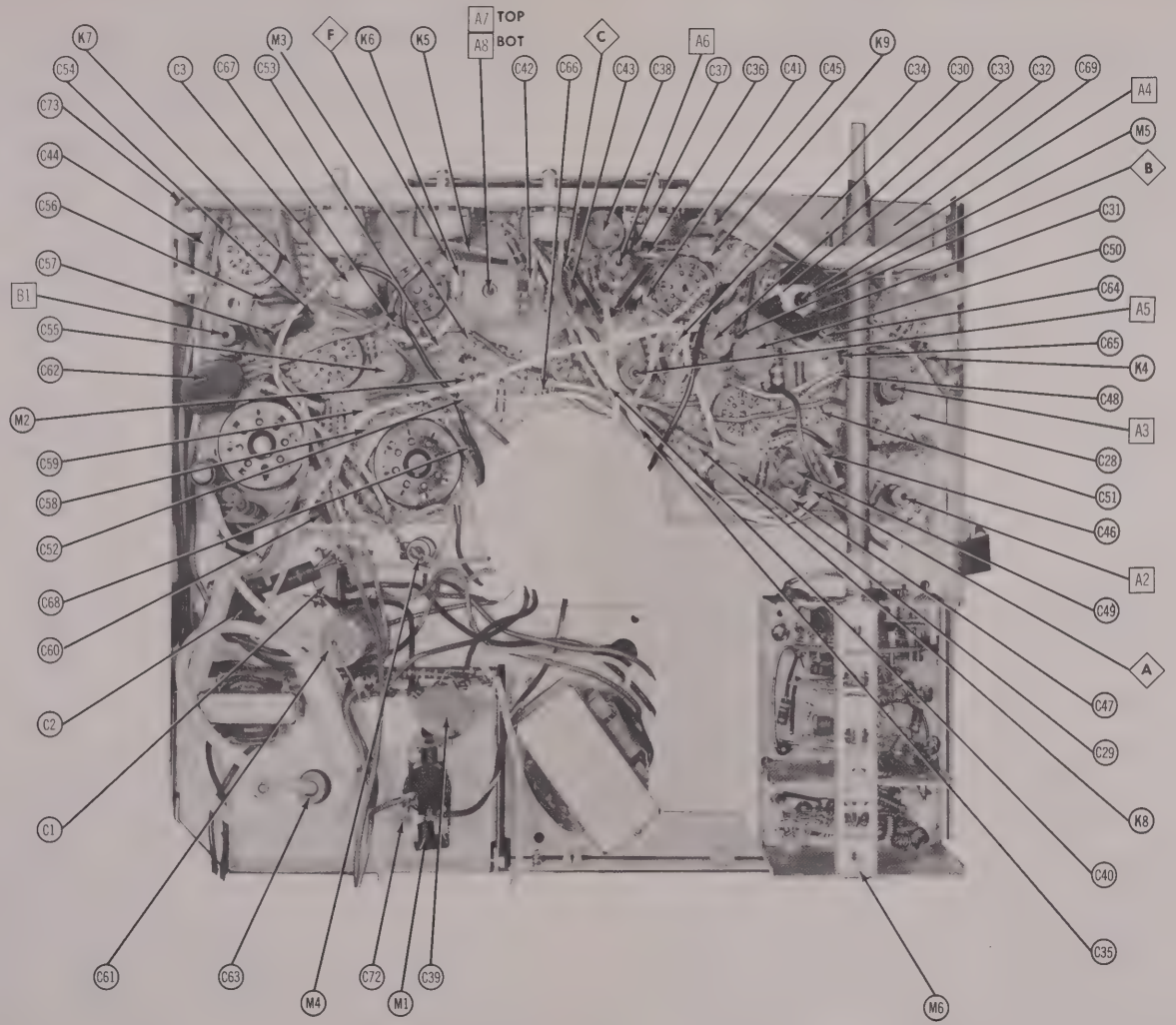
LOSS OF PICTURE OR SOUND
No pic, no sound, has raster -**V3, V4, Diode (M5), V5**
No pic, no sound, has snow - **V1, V2**
No pic, has sound, has raster - **V5, V14**
Has pic, no sound - **V6, V7, V8**

SYNC FAILURE
No vert. sync - **V5**
No horiz. sync - **V5, Diode (M2, M3)**
No vert. or horiz. sync -**V5**

SWEEP FAILURE
No raster, has sound - **M2, M3, V10, V11, V12, V13, V14**
No vertical deflection - **V3, V9**
Poor vert. linearity or foldover -**V3, V9**
Poor horiz. linearity or foldover - **V10, V11, V12**
Narrow picture - **V10, V11, V12, M1**
Vert. off freq. - **V3, V9**
Horiz. off freq. - **V10**

This receiver employs tubes used in a series filament network, an open filament in any tube in the series will cause the set to be inoperative. (See circuit below).





CHASSIS BOTTOM VIEW-CAPACITOR AND ALIGNMENT IDENTIFICATION

HOTPOINT MODELS
14S206, 14S207 (Q2 Line)
ALTERNATE TUNER SCHEMATIC
(IF OUTPUT) To L7
(RF AGC) To Junction Of R17, R26 & C29
(Filament String) To Pin 5 Of V10
135V
10mfd
22Ω
MIXER A 5U8
OSC B 5U8
2CY5
5U8
RF AMP 2CY5
FINE TUNING
CHANNEL SELECTOR SWITCH SHOWN IN CHANNEL 13 POSITION
VHF Tuner Part #RJX-098
UHF Tuner B+
UHF IF INPUT
VHF ANT. TERMINAL BOARD
To UHF Tuner Filament
Gimmick
A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958

ALIGNMENT INSTRUCTIONS

FOR ALIGNMENT INSTRUCTIONS

USE AN ISOLATION TRANSFORMER TO PROTECT THE TEST EQUIPMENT
The high voltage lead should be securely taped and kept away from the chassis.
Allow a 20 minute warm-up period for the receiver and test equipment

VIDEO IF ALIGNMENT

Turn the volume control fully counter clockwise.
Turn the contrast control fully clockwise.
Connect the negative lead of a 3 volt bias supply to point Ⓐ. Positive to chassis.
Use only enough generator output to provide a usable indication on VTVM

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
1	Direct	High side to ungrounded tube shield floating over mixer-osc tube (V2) Low side to chassis	44.3MC (Unmod)	Any non-interfering channel	DC probe thru 33K to point Ⓓ. Common to chassis	A1, A2	Adjust for maximum deflection.
2			45.3MC	"	"	A3	"
3	"		43.3MC	"	"	A4	"

OVERALL VIDEO IF RESPONSE CHECK

Connect bias as under "Video IF Alignment".
Calibrate the scope so that 3 volts peak to peak will produce 2 inches of deflection.
Keep the signal input to the receiver at a level that will produce approximately 2 inches of deflection.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
4	Direct	High side to ungrounded tube shield floating over mixer-osc tube (V2) Low side to chassis.	44.3MC (10MC Swp)	41.25MC 42.65MC 44.3MC 45.0MC 45.75MC	Any non-interfering channel	Vert. Amp. thru 33K to point Ⓓ. Low side to chassis.		Check for response similar to Fig. 1 with markers as indicated. If necessary, retouch A4 to place 42.85MC marker at 40%, A3 to place 45.75MC at 40% and A1 and A2 for peak region symmetry. The 41.25MC marker is very critical and should be kept between 4-6%.

4.5MC TRAP ALIGNMENT

Set the contrast control fully clockwise

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
5	001MFD	High side to point Ⓑ Low side to chassis	Not used	4.5MC (400- 30% AM Mod)	Any non-interfering channel	Vert. Amp. thru detector (Fig. 2) to point Ⓒ. Low side to chassis	A5	Adjust for MINIMUM 400% indication on scope

SOUND IF ALIGNMENT

Turn volume control fully counter clockwise unless the speaker is connected.
Connect two matched 100K (±1%) resistors in series from point Ⓒ to chassis. The junction of these two resistors is alignment point Ⓔ as shown on the schematic.
A station signal may be substituted for the signal generator.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
6	001MFD	High side to point Ⓑ Low side to chassis	4.5MC (Unmod)	Any non-interfering channel	DC probe thru 10K to point Ⓓ. Common to chassis	A6, A7	Adjust for maximum deflection.
7	"	"	"	"	DC probe thru 10K to point Ⓔ Common to point Ⓔ	A8	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting. Repeat steps 6 and 7.

VHF OSCILLATOR ALIGNMENT

Connect bias as under "Video IF Alignment".
Set the fine tuning to the center of its range.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide a usable pattern on scope.
Use 10MC sweep unless otherwise noted.
Coils not containing adjustable cores are adjusted by expanding or compressing coil turns.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
8	Fig 3	Across VHF antenna terminals thru matching network (Fig. 3)	213MC	211.25MC	13	Vert Amp thru 47K to point Ⓓ Low side to chassis	A9	Adjust to place video marker at 50% as in Fig. 4.
			207MC	205.25MC	12		A10	
			201MC	199.25MC	11		A11	
			195MC	193.25MC	10		A12	
			189MC	187.25MC	9		A13	
			183MC	181.25MC	8		A14	
			177MC	175.25MC	7		A15	
			85MC	83.25MC	6		A16	
			79MC	77.25MC	5		A17	
			69MC	67.25MC	4		A18	
			63MC	61.25MC	3		A19	
			57MC	55.25MC	2		A20	

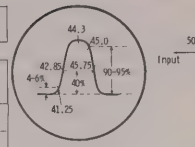


FIG. 1

FIG. 2

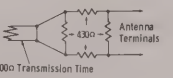
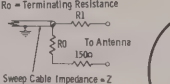


FIG 3A



Zo	Ro	R1
50Ω	56Ω	120Ω
75Ω	82Ω	110Ω
92Ω	110Ω	100Ω

FIG. 3B

FIG. 4

FIG. 5

FIG. 6

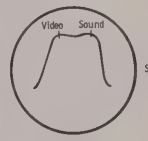


FIG. 7

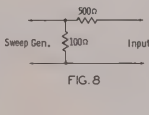


FIG. 8

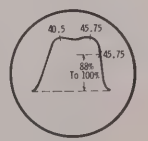


FIG. 9

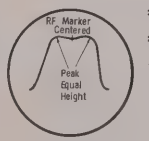


FIG. 10

VHF RF AND MIXER ALIGNMENT FOR TUNERS #RJX-098 AND RJX-100

Connect bias as under "Video IF Alignment".
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
Use only enough sweep generator output to provide a usable pattern on scope.
Use 10MC sweep unless otherwise noted.
Coils not containing adjustable cores are adjusted by expanding or compressing coil turns.
NOTE: Tuner shield should be in place to check response.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
9.	Fig 3	Across VHF antenna terminals thru matching network (Fig. 3).	213MC	211.25MC 215.75MC	13	Vert. Amp. thru 10K to point Ⓓ. Low side to chassis	A21, A22, A23, A24, A25	Adjust for maximum gain and symmetry of response similar to Fig. 8 with markers as shown. Adjust bandwidth by changing position of C14 lead (A24) with respect to high band coupling strap. If dip is excessive, adjust A25 only SLIGHTLY to prevent loss of gain.
10	"	"	177MC	175.25MC 179.75MC	7	"	A26, A27, A28	Adjust for maximum gain and symmetry of response similar to Fig. 8 with markers as shown. Adjust bandwidth by repositioning the "gimmick" wire (A26) with relation to C13. Recheck step 9 and retouch A21, A22 and A23, if necessary.
11.	"	"	207MC	205.25MC 209.75MC	12	"		Check for response similar to Fig. 8. If necessary, make compromise adjustments of A28 and A27 with channel switch set to that channel. Check other channels to make sure that they have not been seriously affected.
			201MC	199.25MC 203.75MC	11			
			195MC	193.25MC 197.75MC	10			
			189MC	187.25MC 191.75MC	9			
			183MC	181.25MC 185.75MC	8			
12.	"	"	85MC	83.25MC 87.75MC	6	"	A29, A30, A31	Adjust for maximum gain and symmetry of response similar to Fig. 8 with markers as shown.
13	"	"	79MC	77.25MC 81.75MC	5	"	A32, A33, A34	Check tracking. Adjust for proper response, if necessary.
14	"	"	69MC	67.25MC 71.75MC	4	"	A35, A36, A37	"
15.	"	"	63MC	61.25MC 65.75MC	3	"	A38, A39, A40	"
16	"	"	57MC	55.25MC 59.75MC	2	"	A41, A42, A43	"

VHF RF AND MIXER ALIGNMENT FOR TUNERS #RJX-097 AND RJX-098

Connect bias as under "Video IF Alignment".
Disconnect the link from the tuner output leaving the ground wire connected. Connect a 100Ω resistor from the tuner output to chassis.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
Use only enough sweep generator output to provide a usable pattern on scope.
Use 10MC sweep unless otherwise noted.
Coils not containing adjustable cores are adjusted by expanding or compressing coil turns.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
17.	Fig. 3	Across antenna terminals thru matching network (Fig. 3).	213MC	211.25MC 215.75MC	13	Vert. Amp. thru 10K to point Ⓓ. Low side to chassis.	A44, A45, A46, A47	Adjust in numerical order for maximum gain and symmetry similar to Fig. 8. Adjust first coil for video side of curve and second coil for sound side.
18.	"	"	207MC	205.25MC 209.75MC	12	"	A48, A49	"
19.	"	"	201MC	199.25MC 203.75MC	11	"	A50, A51	"
20.	"	"	195MC	193.25MC 197.75MC	10	"	A52, A53	"
21.	"	"	189MC	187.25MC 191.75MC	9	"	A54, A55	"
22	"	"	183MC	181.25MC 185.75MC	8	"	A56, A57	"
23.	"	"	177MC	175.25MC 179.75MC	7	"	A58, A59	"
24.	"	"	85MC	83.25MC 87.75MC	6	"	A60, A61	Adjust in numerical order for maximum gain and symmetry similar to Fig. 7. Adjust first coil for video side of curve and second coil for sound side.
25.	"	"	79MC	77.25MC 81.75MC	5	"	A62, A63	"
26.	"	"	69MC	67.25MC 71.75MC	4	"	A64, A65	"
27.	"	"	63MC	61.25MC 65.75MC	3	"	A66, A67	"
28.	"	"	57MC	55.25MC 59.75MC	2	"	A68, A69	Adjust in numerical order for maximum gain and symmetry similar to Fig. 7. Adjust first coil for video side of curve and second coil for sound side. Remove 100Ω resistor and reconnect tuner output link.

HOTPOINT MODELS
145206, 145207 (G2 Line)

FOLDER 2

ALIGNMENT INSTRUCTIONS (cont)

UHF IF ALIGNMENT

Connect the negative lead of 3 volt bias supply to point (J). Positive to chassis.
Disconnect IF link from L7 and terminate with a 68Ω resistor at the opened end only.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
Use only enough sweep generator output to provide a usable pattern on scope.
Set the VHF tuner to the UHF position and adjust the UHF tuning for MINIMUM tilt of the response curve over the center of the tuning area (approximately 620MC).

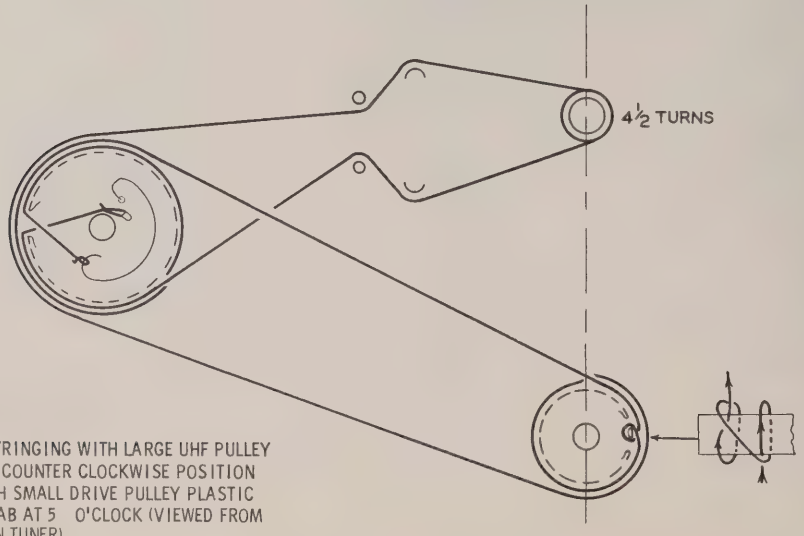
	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
29.	Fig. 8	High side to point (K). Low side to tuner chassis.	43MC (10MC Swp)	40.5MC 45.75MC	UHF	Vert. Amp. thru 10K to point (G). Low side to chassis.	A70, A71, A72	Adjust A70 for maximum amplitude at 40.5 MC, A71 for maximum amplitude at 45.75MC and A72 for maximum gain and MINIMUM tilt. (See Fig. 9).

UHF TUNER ALIGNMENT

Connect the negative lead of a 3 volt bias supply to point (J). Positive to chassis.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide a usable pattern on scope.
Use 10MC sweep unless otherwise noted.
Coils not containing adjustable cores are adjusted by expanding or compressing coil turns.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
30.	Two 120Ω Carbon Resistors	Across UHF antenna terminals with 120Ω in each lead.	460MC	460MC	UHF (Turn UHF tuning shaft fully counter clockwise).	Vert. Amp. thru 10K to point (G) on VHF tuner RJX-100 or point (H) on VHF tuner RJX-098. Low side to chassis.	A73	Adjust to place marker in notch. (See Fig. 10).
31.	"	"	910MC	910MC	UHF tuning shaft fully clockwise	"	A74	Adjust oscillator end inductor (A74) to place marker in notch. Repeat steps 30 and 31 until markers fall in notch at both ends of band.
32.	"	"	530MC	530MC	Adjust UHF tuning until marker falls in notch.	To the output of the audio amplifier (See remarks).	A75, A76	Short points (L) and (M) together but not to chassis. Disconnect the coaxial cable at the VHF tuner and connect a 33Ω resistor across the open ends. Connect the input of an audio amplifier across the 33Ω resistor. The audio amplifier should have sufficient gain to produce 2 inches of deflection on the scope with .1 volt peak to peak input. Set sweep generator output to provide 2 inch deflection on scope. Adjust A75 and A76 for symmetrical response on either side of the marker as in Fig. 10.
33.	"	"	880MC	880MC	"	Vert. Amp. thru 10K to point (G) on VHF tuner RJX-100 or point (H) on VHF tuner RJX-098. Low side to chassis.	A77, A78	Short points (L) and (M) together but not to chassis. Disconnect coaxial cable from VHF tuner and connect a 33Ω resistor across open ends and connect amplifier and scope as in step 32. Adjust A77 and A78 for symmetrical response on either side of marker as in Fig. 10. Remove short from across points (L) and (M) and repeat steps 30 thru 33 until symmetrical response is obtained at both 530MC and 880MC.

Sweep across the entire UHF band and observe the bandpass curve. Minor deviations in tilt or gain may be allowed but be sure to check for abnormally low gain points within the tuning range. This may be a result of insufficient oscillator injection. Check by measuring the crystal current. To do so short points (L) and (M) together, but not to ground and connect a 0-5 MA meter across the coaxial output cable. The reading should be between .65MA and 3.0MA. If the reading falls outside these limits, adjust the position of the oscillator injection loop (A79) with respect to the crystal clip terminal.



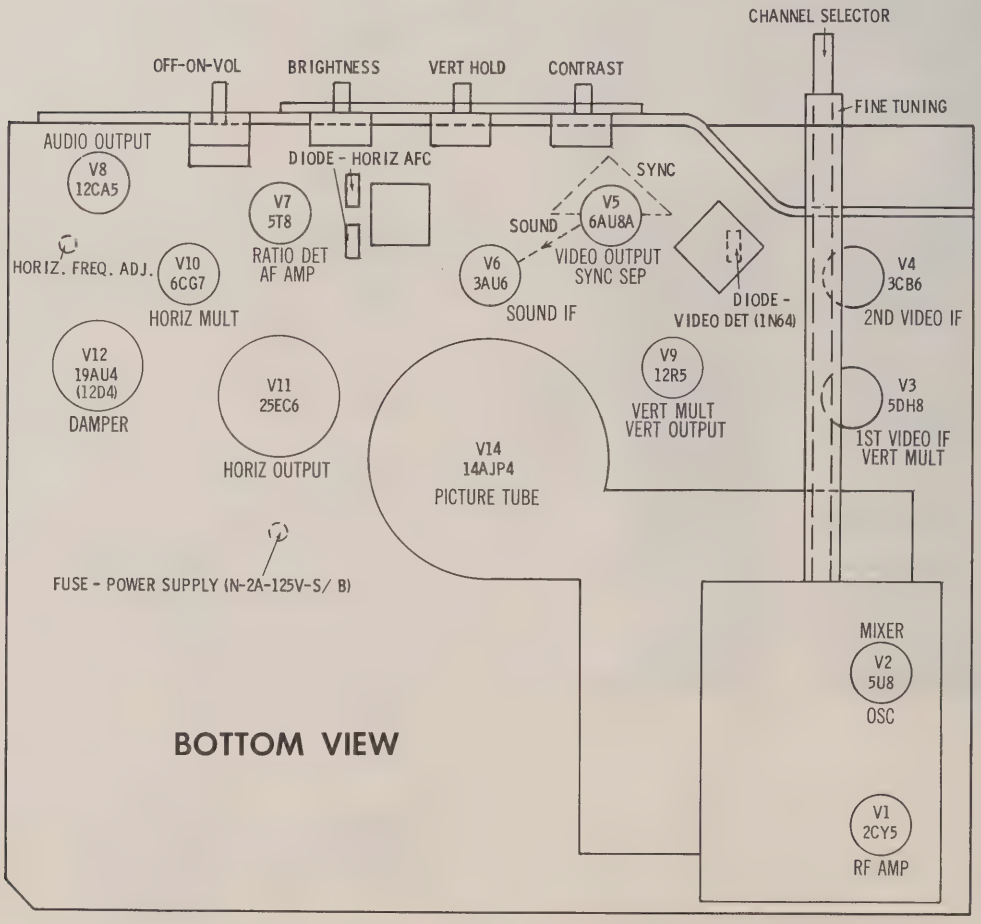
START STRINGING WITH LARGE UHF PULLEY AT MAX. COUNTER CLOCKWISE POSITION AND WITH SMALL DRIVE PULLEY PLASTIC SLEEVE TAB AT 5 O'CLOCK (VIEWED FROM FRONT ON TUNER).

UHF DRIVE CORD STRINGING

RESISTANCE MEASUREMENTS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	2CY5	2.4Meg	0Ω	1.5Ω	1Ω	†46Ω	†8000Ω	0Ω		
V2	5U8	†12K	165K	†10K	0Ω	1Ω	†510Ω	0Ω	0Ω	10K
V3	5DH8	• 900K	•‡2.5Meg	0Ω	7.5Ω	10Ω	†585Ω	†585Ω	47Ω	2.4Meg
V4	3CB6	.1Ω	56Ω	10Ω	11Ω	†245Ω	†245Ω	0Ω		
V5	6AU8A	0Ω	2.5Meg	†25K	13Ω	11Ω	82Ω	1Meg	†24Ω	†3500Ω
V6	3AU6	1.7Ω	0Ω	5Ω	4.5Ω	†15K	†15K	180Ω		
V7	5T8	INF	22K	INF	4.5Ω	3Ω	0Ω	0Ω	6.8Meg	†470K
V8	12CA5	120Ω	470K	16Ω	19Ω	470K	†680Ω	†930Ω		
V9	12R5	0Ω	• 1.6Meg	7.5Ω	5Ω	• 1.6Meg	†24Ω	†214Ω		
V10	6CG7	†15K	1.5Meg	1100Ω	3Ω	1.5Ω	†150K	• 100K	1100Ω	0Ω
V11	25EC6	NC	24Ω	0Ω	NC	1.5Meg	NC	30Ω	†200Ω	TOP CAP ‡16Ω
V12	19AU4	NC	NC	¶	NC	†24Ω	NC	19Ω	24Ω	
V13	1X2A	PINS 1 THRU 9 HAVE INFINITE RESISTANCE								TOP CAP ‡336Ω
V14	14AJP4	16Ω	47K	• ‡85K	†100K	NC	NC	• 250K	13Ω	

¶ THIS READING CAN VARY GREATLY, (10K MINIMUM), DUE TO THE CONDITION OF THE ELECTROLYTIC CAPACITOR CONNECTED IN THE ASSOCIATED CIRCUIT.
• THIS READING WILL VARY. CONTROL SET FOR NORMAL OPERATION
† MEASURED FROM 140V SOURCE.
‡ MEASURED FROM PIN 3 OF V12.
NC NO CONNECTION.

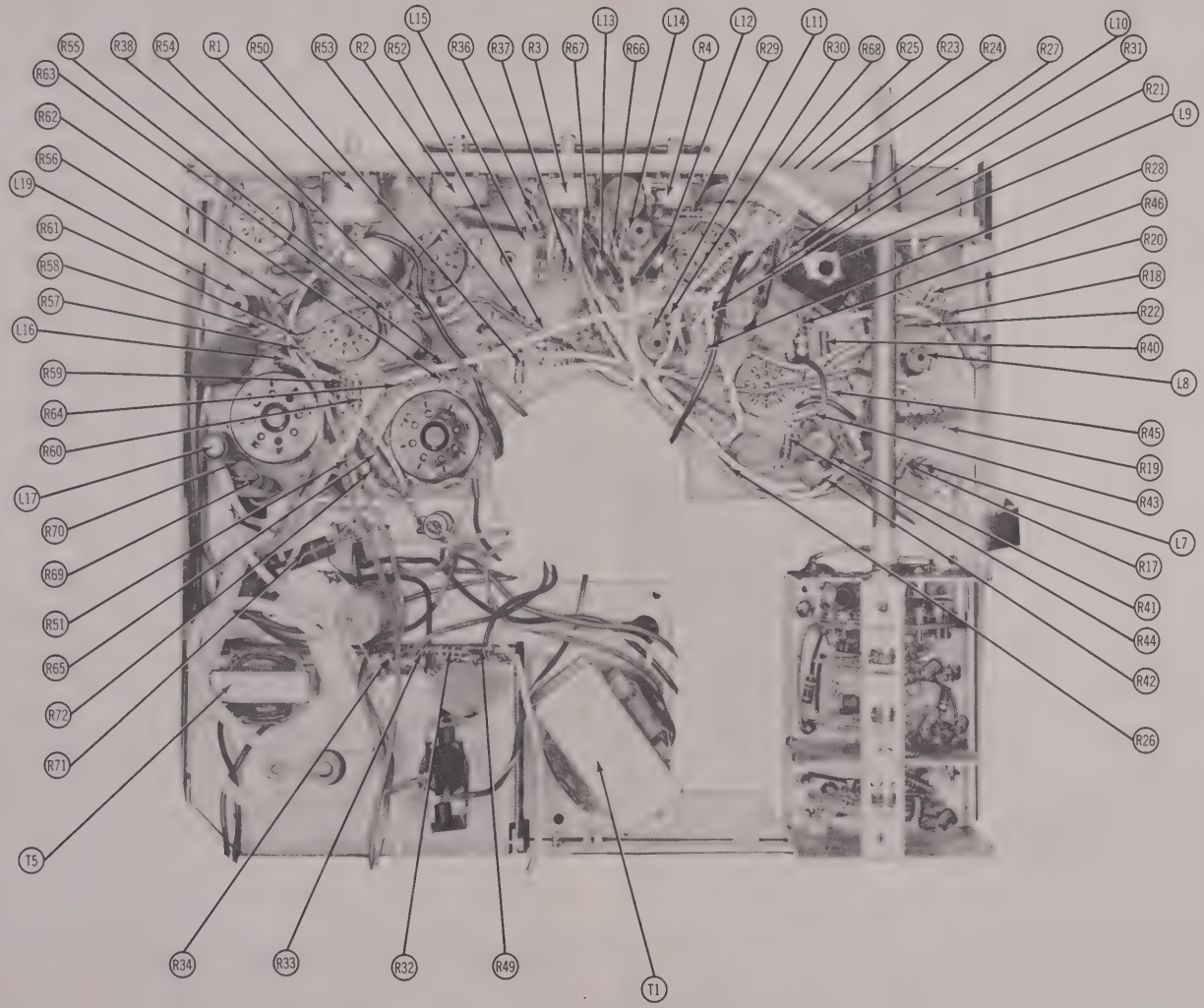


TUBE PLACEMENT CHART

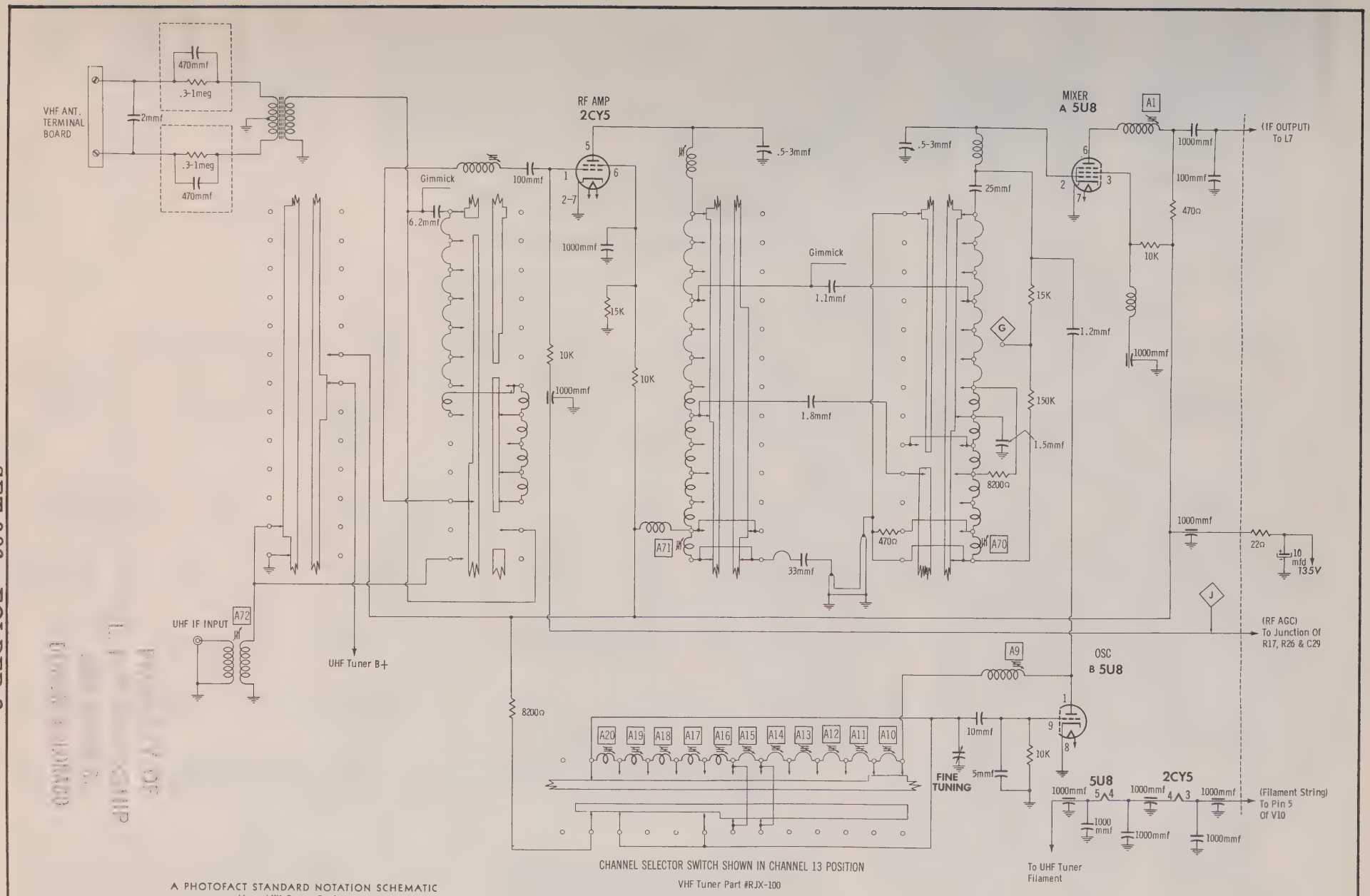
HOTPOINT MODELS
14S206, 14S207 (Q2 Line)

CHASSIS TOP VIEW

FOLDER 2



CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION



A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958

ALTERNATE TUNER SCHEMATIC

HOTPOINT MODELS 14S206, 14S207 (G2 Line)

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	RF Amplifier	3CY5	
V2	Mixer-Oscillator	5U8	
V3	1st Video IF Amp - Vert. Mult.	5DN8	
V4	2nd Video IF Amp	3CB6	
V5	Video Output-Sync Sep	6AU6A	
V6	Sound IF Amp	3AU6	
V7	Ratio Det - AF Amp	5T8	
V8	Audio Output	12CA5	
V9	Vert. Output-Vert Mult	12B5	
V10	Horiz. Mult	6CG7	
V11	Horiz. Output	25EC6	
V12	Damper	1BA1/4	Note 1
V13	HV Rectifier	1X2A	

Note 1. A 1BD4 may be used in some versions.

PICTURE TUBE

ITEM No.	REPLACEMENT DATA: HOTPOINT PART No.	GENERAL ELECTRIC PART No.	SYLVANIA PART No.	NOTES
V14	14AJP4	14AJP4 ①	14AJP4 ②	① Aluminized ② Silver screen '65

ELECTROLYTIC CAPACITORS

ITEM No.	RATING: CAP	VOLT	REPLACEMENT DATA: HOTPOINT PART No	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No	PYRAMID PART No	SANGAMO PART No.	SPRAGUE PART No.
C1	375	150	RCE-267	AFH2-23	XB9189	CFP119 TC4823	TMD-21	D-090	R2490 *
C2A	4290	150	RCE-268	AFH4-23-70				Q-130 MTD-4510	R3491 *
B	429	150							
C	853	150							
D	100	10							
C3	4	50	RCE-236	PRS150V4	BBR4-50	TC308	TD-4-50	MT-0604	TVA-1402

* Non-catalog item

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP	VOLT	REPLACEMENT DATA: HOTPOINT PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C4	2		RCW-3082			C10V2C				NPO ± .25MMF
C5	6.2		RCW-3083							NPO 5%
C6	.02		RCW-3296	NPO-S1 100	TCZ-100	C10TIC	ED-100	ZT-531	5TCC-T1	10%
C7	.100		RCW-3217	EF-001	MFT-1000				50S-C-D1	
C8	.1000		RCW-3345	BPD-001	DD-103	BYA401	ED-1000	DC521	5HK-D	①
C9	.5-3.0		RCW-3080				829-3	3115-D	CT565A	
C10	1.5		RCW-016	NPO-S1 1.5	TCZ-1R5	C10V15C	TCC-1.5	ZT-5515	5TCCB-V1S	10%
C11	1.5		RCW-016	NPO-S1 1.5	TCZ-1R5	C10V15C	TCC-1.5	ZT-5515	5TCCB-V1S	10%
C12	.01		RCW-013							10%
C13	1000		RCW-3217	EF-001	MFT-1000				50S-C-D1	
C14	33		RCW-3308	NPO-S1 33	TCZ-33	C10Q33C	TCC-33	ZT-5433	5TCC-Q33	5%
C15	33		RCW-3308	NPO-S1 33	TCZ-33	C10Q33C	TCC-33	ZT-5433	5TCC-Q33	5%
C16	3-3.6		RCW-3080		829-3		CT565A	3115-D		
C17	1000		RCW-3117	EF-001	MFT-1000				50S-C-D1	
C18	800		RCW-3027	BPD-0008	DD-801	L10T8	ED-0008		5GA-T8	②
C19	100		RCW-3327	NPO-S1 100	TCZ-100	C10TIC	ED-100	ZT-531	5TCC-T1	5%
C20	1.2		RCK-023							5%
C21	10		RCW-3356	N750-S2 10	TCN-10	C10Q1U	TCC-10	NT-541	5TCU-C6	N750 5%
C22	5		RCW-3146	NPO-S1 5	TCZ-5	C10V5C	TCC-5	ZT-555	5TCC-Q5	5%
C23	1000		RCW-3345	BPD-001	DD-103	BYA401	ED-1000	DC521	5HK-D4	①
C24	1000		RCW-3217	EF-001	MFT-1000				50S-C-D1	
C25	1000		RCW-3117	EF-001	MFT-1000				50S-C-D1	
C26	1000		RCW-3345	BPD-001	DD-103	BYA401	ED-1000	DC521	5HK-D4	①
C27	1750	1400	RCW-3321	DAC-3		HVB561R	HDH5-1000		BL-DH3	
C28	270		RCW-3327		D6-271	L10T27	ED-270			10%
C29	.1	300	RCB-017							10%
C30	.022		RCW-3302				ED-820			10%
C31	15		RCW-3332							NPO ± .25MMF
C32	5		RCW-3087	NPO-S1 5	TCZ-5	C10V5C	TCC-5	ZT-555	5TCCB-V5	NPO
C33	.047	100	RCB-015							10%
C34	1000		RCW-3187				ED-1300			10%
C35	3000		RCW-3291	BPD-005	DD-503	BYA10D6	ED-005	DC535	5HK-D5	
C36	33		RCW-3308	NPO-S1 33	TCZ-33	C10Q33C	TCC-33	ZT-5433	5TCC-Q33	NPO 5%
C37	47			S1 47	D6-470	L10Q47	GF-47	DC-5447	5GA-Q53	③
C38	.1	600	RCB-026						BL-S10	10%
C39A	10000	1000	RCW-3264	DAC-27		HVB26S1			BL-S10	④
B	10000	1000		DAC-27		HVB26S1			BL-S10	④
C40	20		RCW-3171	NPO-S1 20	TCZ-20	C10Q3C	TCC-20	ZT-542	5TCC-Q2	NPO 5%
C41	3.3		RCW-3304	NPO-S1 3.0		C10V3C	TCC-3	ZT-553		NPO 5%
C42	2200		RCW-3346							10%
C43	5000		RCW-3014	BPD-005	DD-503	BYA10D6	ED-005	DC535	5HK-D6	
C44	10000		RCW-3306				ED-2000			10%
C45	10000		RCW-3188	BPD-01	DD-103	BYA401	ED-01	DC511	5HK-51	③
C46	3300		RCW-3320							10%
C47	220	200	RCB-024							10%
C48	50000		RCW-3238	BPD-05	DF-503				5HK-55	
C49	.029	300	RCB-047							10%
C50	.047	1000	RCB-049							10%
C51	800		RCW-3037	BPD-0008	DD-801	L10T8	ED-0008		5GA-T8	
C52	200		RCW-3187				ED-1200			10%
C53	820		RCW-3282				ED-820			10%
C54	5000		RCW-3274							10%
C55	.1	200	RCB-017							10%
C56	2500		RCG-041	1464-0032		1R5D32			MS-222	10%
C57	1000		RCG-004	1464-001		1R5D		MCR265	1464-01	5%
C58	3300		RCW-3238		D6-301	L10T3	ED-300			10%
C59	3900		RCW-3185							10%
C60	1280		RCW-3187				ED-1300			10%
C61	.05	600		P660N-15		CUB6P15		GEM-6015	6TM-P15	
C62	500	3000		HVD-30-470	D030-501	6VB30T5	HD6-470	DC30347	50GA-T5	③
C63	500	10000	RCW-3225		BPD-0008		413-1			
C64	800		RCW-3037	BPD-0008	DD-801	L10T8	ED-0008		5GA-T8	
C65	800		RCW-3037	BPD-0008	DD-801	L10T8	ED-0008		5GA-T8	
C66	800		RCW-3227	BPD-0008	DD-801	L10T8	ED-0008		5GA-T8	
C67	800		RCW-3237	BPD-0008	DD-801	L10T8	ED-0008		5GA-T8	
C68	800		RCW-3037	BPD-0008	DD-801	L10T8	ED-0008		5GA-T8	
C69	800		RCW-3037	BPD-0008	DD-801	L10T8	ED-0008		5GA-T8	
C70	.022	600 ③	RCW-3295	DAC-27		HVB26S1		GEM-1611	BL-S10	③
C71	10000	1400	RCW-3296	DAC-27		HVB26S1		GEM-1611	BL-S10	

CAPACITORS (cont)

ITEM No.	RATING: CAP	VOLT	REPLACEMENT DATA: HOTPOINT PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C72	1000	1000	RCW-3329	HYD-15-1000	D7-102	BYA10DM	HD15-1000	DC3021	5GA-D1	
C73	1000	1400	RCW-3331	DAC-2	UD30-102	HVB56Z2		GEM-1621	BL-D10	

① Some versions use 800MMF (Part #RCW-3087) in this application.
② Some versions use 1000MMF (Part #RCW-3345) in this application.
③ Not used in some versions.
④ Some versions use Individual capacitors 10000MMF, 1000V ± 10% (Part #RCW-091) in this application.
⑤ Some versions use 5000MMF (Part #RCW-3316) in this application.
⑥ Some versions use .01MFD, 600V ± 80% or 10000MMF ± 1400V (Part #RCW-3296) in this application. Replace with 10000MMF, 1400V.
⑦ Some versions use 540MMF, 3000V ±10% N1500 ceramic (Part #RCW-3238).

CONTROLS

ITEM No.	RATING: RESISTANCE	WATTS	REPLACEMENT DATA: HOTPOINT Part No	CENTRALAB Part No.	CLAROSTAT Part No.	IRC Part No.	MALLORY Part No.	INSTALLATION NOTES
R1A	500K	½	RRC-399					Volume
B	Switch							
R3	200K	½	RRC-427					Brightness
R4	1.5Meg	½	RRC-403					Vert. Hold
R5	12K	½	RRC-438 ①					Contrast-Tap ② 7500Ω
R8A	1Meg	½	RRC-395	AB-69 AK-19	A47-1Meg-S RN-3	Q1-137 TQ	PTA1254L Not Req.	Horiz. Hold
B	Shaft							
R8A	400K	½	RRC-400					Height
B	5Meg							Vert. Lin.

① In some versions this control remains the same part number, but is a 12K with no tap.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise stated.

ITEM No.	RATING: OHMS	WATT	HOTPOINT Part No	NOTES
R7	10K			
R8	10K			
R9	15K			
R10	68000			
R11	15K			
R12	150K			
R13	470Ω			
R14	10K			
R15	10K			
R16	12K			
R17	82000			
R18	560Ω			
R19	47Ω			
R20	47K			Note 1
R21	220Ω			
R22	96Ω			
R23	22Meg			Note 2
R24	220K			Note 3
R25	2.2Meg			Note 4
R26	2.2Meg			
R27	4700Ω			
R28	1Meg			
R29	82K			Note 5
R30	4700Ω	2		
R31	82Ω			
R32	47K			
R33	390K			
R34	100K			
R35	100K			
R36	15K			
R37	180Ω			
R38	120Ω			
R39	100K			
R40	1Meg			

ITEM No.	RATING: OHMS	WATT	HOTPOINT Part No.	NOTES
R41	2.2Meg			Note 6
R43	1.5Meg			Note 1
R43	680K			
R44	82Meg		RRD-006	
R45	47K			
R46	22K	1		
R47	22000Ω			
R48	22000Ω			
R49	1000Ω			
R50	75K 5%			
R51	4.7Meg 5%			
R52	270K			
R53	220K			
R54	1Meg			
R55	47K			
R56	15K 5%			
R57	130K			
R58	820K			
R59	150K			
R60	220K			
R61	1000Ω 5%			
R62	470Ω			
R63	1.5Meg			
R64	18K			
R65	180Ω	1		Note 1
R66	10K			
R67	220K			
R68	5800Ω			
R69	270K	1		
R70	270K	1		
R71	680Ω	2		
R72	22Ω			
R73	6.7Ω	4	RRW-171	Note 7
R74	5Ω	10	RRW-170	

Note 1. Not used in some versions.
Note 2. Some versions may use a 20Meg, 5% in this application.
Note 3. Some versions may use a 180K in this application.
Note 4. Some versions may use a 1.5Meg in this application.
Note 5. Some versions may use a 33K in this application.
Note 6. Some versions may use a 3.3Meg in this application.
Note 7. Some versions may use a 7.5Ω, 7W (Part #RW-171) or an 18Ω, 10W (Part #RW-179) in this application.

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No	USE	REPLACEMENT DATA: HOTPOINT Part No	Halldorson Part No	Merit Part No	Stancor Part No.	Thordorson Part No	Triad Part No	NOTES
T1	Vert. Output	RTO-309	Z1900 ①		V316	A-8147	28S75 ①	A-118X ②
T2	Yoke-Horiz. (2.6MH) (10^3)-Vert. (43MH)	RLD-080						
T3	Horiz. Output	RTO-307						

① Use 6 to 1 turns ratio. Connect as autoformer.
② Use 5 6 to 1 turns ratio.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE: PRI.	SEC.	REPLACEMENT DATA: HOTPOINT Part No.	Halldorson Part No.	Merit Part No.	Stancor Part No.	Thordorson Part No.	Triad Part No.	NOTES
T4	3600Ω	3-4Ω	RTO-310	Z1105 ①		A-3018 ①	A-3238	24S48	S-4X ①	① Drill one new mounting hole.

SPEAKER

ITEM No.	TYPE: SIZE	FIELD	V. C. IMP.	REPLACEMENT DATA: HOTPOINT Part No.	QUAM Part No.	NOTES
SP1	4"	PM	3-4Ω	ROP-035	4AD7	

COILS (RF-IF)

ITEM No.	USE	HOTPOINT Part No.	NOTES
L1	Ant. Trans.	RLA-047	
L2	Ant. Coils	RSX-109	Channels 2-13, includes wafer assy. and C8 and L1
L3	RF Coils	RSX-108	Channels 2-13, includes wafer assy. and C10, C12, C14
L4	Mixer Grid Coils	RSX-107	Channels 2-13, includes wafer assy. and R10, R11, R13, C15, C20
L5	Osc. Coils	RSX-096	Channels 2 -13, includes wafer assy. and R16
L6	Mixer Plate Coil	RLI-403	

ITEM No.	USE	REPLACEMENT DATA: HOTPOINT Part No.	MEISSNER Part No.	MERIT Part No.	MILLER Part No.	NOTES
L7	1st. Video IF	RLI-361				
L8	2nd. Video IF	RTL-215				
L9	3rd. Video IF	RLI-433				Includes coils, caps and M5
L10	Series Peaking Coil	RLI-148				140 Microhenries
L11	4.5MC Trap	RLI-426				
L12	Shunt Peaking Coil	RLI-348	19-4400	TV-190	6134	390 Microhenries - Note 1
L13	Series Peaking Coil	RLI-197			6164	220 Microhenries
L14	Sound IF	RLI-435				
L15	Ratio Detector	RTD-030			6203SPC ①	Includes resistor
L16	RF Choke	RLI-428				8.2 Microhenries
L17	RF Choke	RLI-429				8.2 Microhenries
L18	Line Choke	RLI-420				120 Microhenries

Note 1. Some versions may use part #RLI-367 (430 Microhenries) in this application. a Connect 2200 resistor to tertiary winding.

TRANSFORMER (HORIZ. OSC.)

ITEM No.	DC RES.: PRI.	SEC.	REPLACEMENT DATA: HOTPOINT Part No	Meissner Part No	Merit Part No	Miller Part No	Ram Part No	Thordorson Part No	NOTES
L19	75Ω		RLI-424						

FILTER CHOKE

ITEM No.	RATINGS: TOTAL DIRECT CURRENT	D.C. RESISTANCE	INDUCTANCE @ CURRENT	REPLACEMENT DATA: HOTPOINT Part No	Halldorson Part No	Merit Part No	Stancor Part No.	Thordorson Part No	Triad Part No
L20	200A	24Ω	.7 HY.	RLF-078				28C44	C-27X ①

① Drill new mounting hole.

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	HOTPOINT Part No.	REPLACEMENT DATA
K1	Antenna Isolation	470MMF, 3-1Meg	RCR-002	Centralab RC-471
K2	Antenna Isolation	470MMF, 3-1Meg	RCR-002	Centralab RC-471
K3	Chassis Isolation	4700MMF @ 1500VAC, 1Meg	RCR-006 ①	Centralab RC-490
K4	Chassis Isolation	4700MMF @ 1500VAC, 1Meg	RCR-006	Centralab RC-490
K5	De-emphasis Network	2000MMF, 4000MMF, 10000MMF, 22K	REK-019	
K6	Ratio Detector	900MMF, 22K	RCR-005	Centralab RC-476
K7	Audio Coupler Network	5000MMF, 10000MMF, 6.8Meg, 470K, 470K	REK-018	
K8	Vert. Integrator Network	2000MMF, 800MMF, 130MMF, 180MMF, 47K, 47K, 100K, 68K	REK-020	
K9	Sync Coupler	470MMF, 470K	RCR-003	Centralab RC-465

① Not used in some versions.

RECTIFIERS

ITEM No.	RATING: CURRENT (Measured)	REPLACEMENT DATA: HOTPOINT Part No.	FEDERAL ELECTRIC Part No.	GENERAL ELECTRIC Part No.	INTERNATIONAL Part No.	SARKES TARZIAN Part No.	NOTES
M1	400A	RER-031 ①	1178A ②	1N1098 ①	RS4508L ②	500 ②	① Germanium type.
M2		RED-006 ①	1315 ②		1T1 ②		② Selenium type.
M3		RED-006 ①	1315 ②		1T1 ②		

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA: HOTPOINT Part No.		LITTELFUSE Part No.		BUSS Part No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M4	N	2A 125V S/B	REF-032	RJW-007	333002 (N 2A 125V S/B)	346017	N2	HN 1 3/4 to 2 1/2

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA: HOTPOINT Part No.	CBS Part No.	SYLVANIA Part No	NOTES
M5	1N54	RED-001	1N54	1N54	Video Detector (Pigtail)

HOTPOINT MODELS 145206, 145207 (Q2 Line)

FOLDER 2

PARTS LIST AND DESCRIPTIONS (Continued)

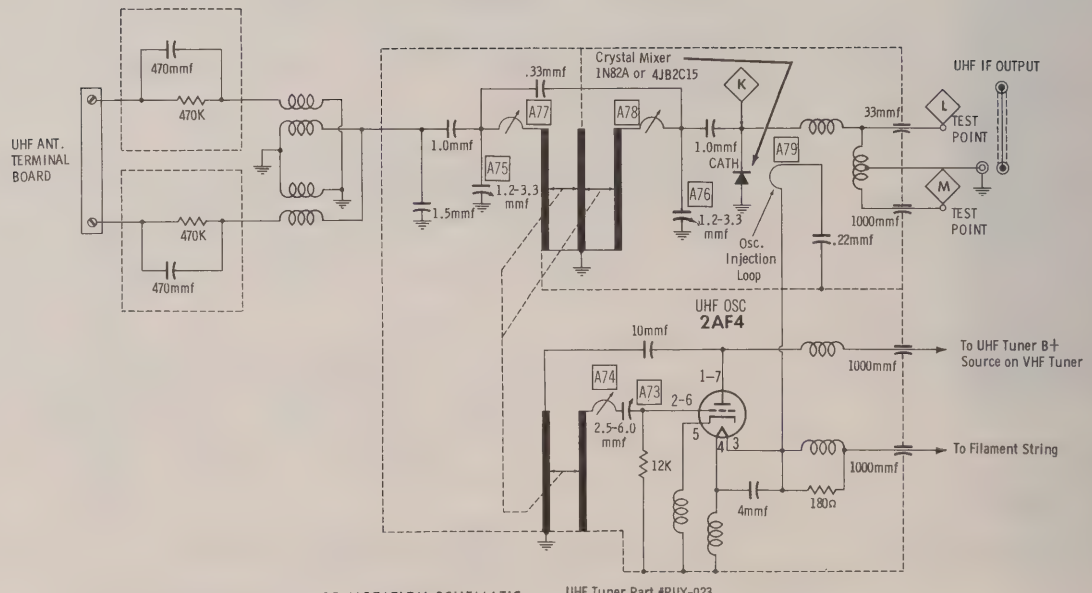
MISCELLANEOUS

ITEM No.	PART NAME	HOTPOINT PART No.	NOTES
M6	Tuner	RJX-099	VHF - 12 position
	Tuner	RJX-097	VHF - 12 position
	Tuner	RJX-098	VHF - 13 position
	Tuner	RJX-100	VHF - 13 position
	Tuner	RUX-023	UHF Assembly
M7	Centering Device	REA-019	(Does not include yoke clamp part #RMX-377).
M8	Ion Trap	RET-016	

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

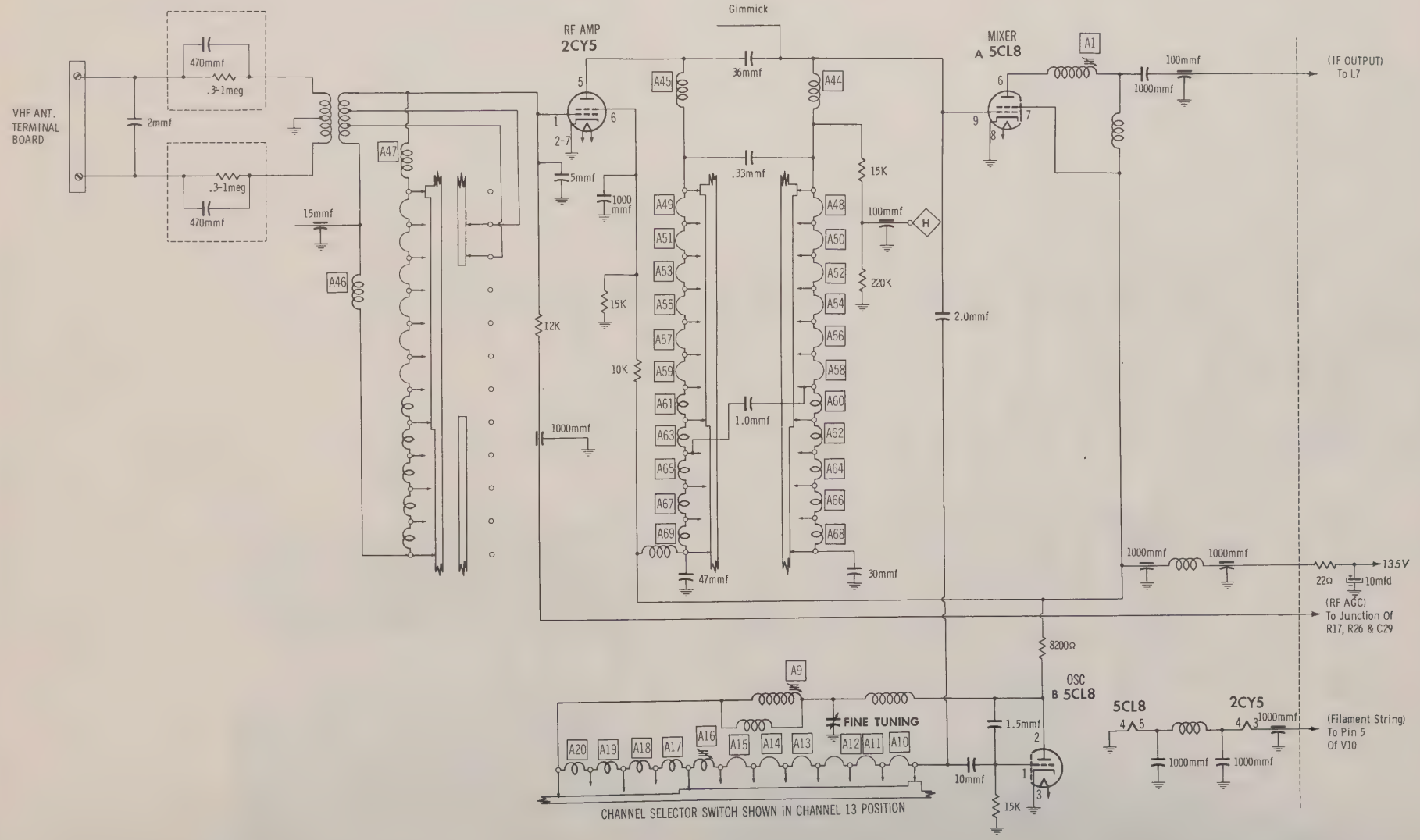
NAME	PART NO.	DESCRIPTION
Safety Glass	HDW-002	
Knob	HDK-013	Secondary
Knob	HDK-014	Selector
Knob	HDK-015	VHF Channel Selector
Knob	HDK-016	Fine Tuning
Dial	HDK-017	UHF
Handle	HHY-002	
Cabinet Back	HAB-009	
Cabinet Front	HAC-010	
Cabinet Body	HAV-020	Model 14S206
Cabinet Body	HAV-021	Model 14S207



A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958

UHF Tuner Part #RUX-023

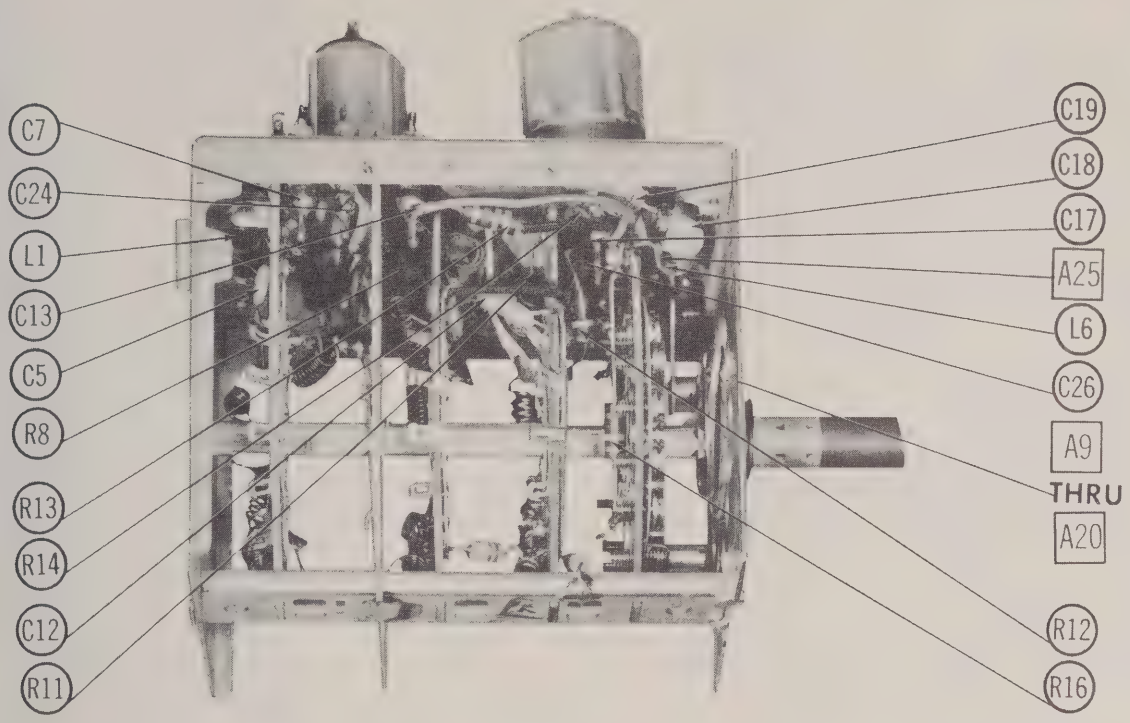
ALTERNATE TUNER SCHEMATIC



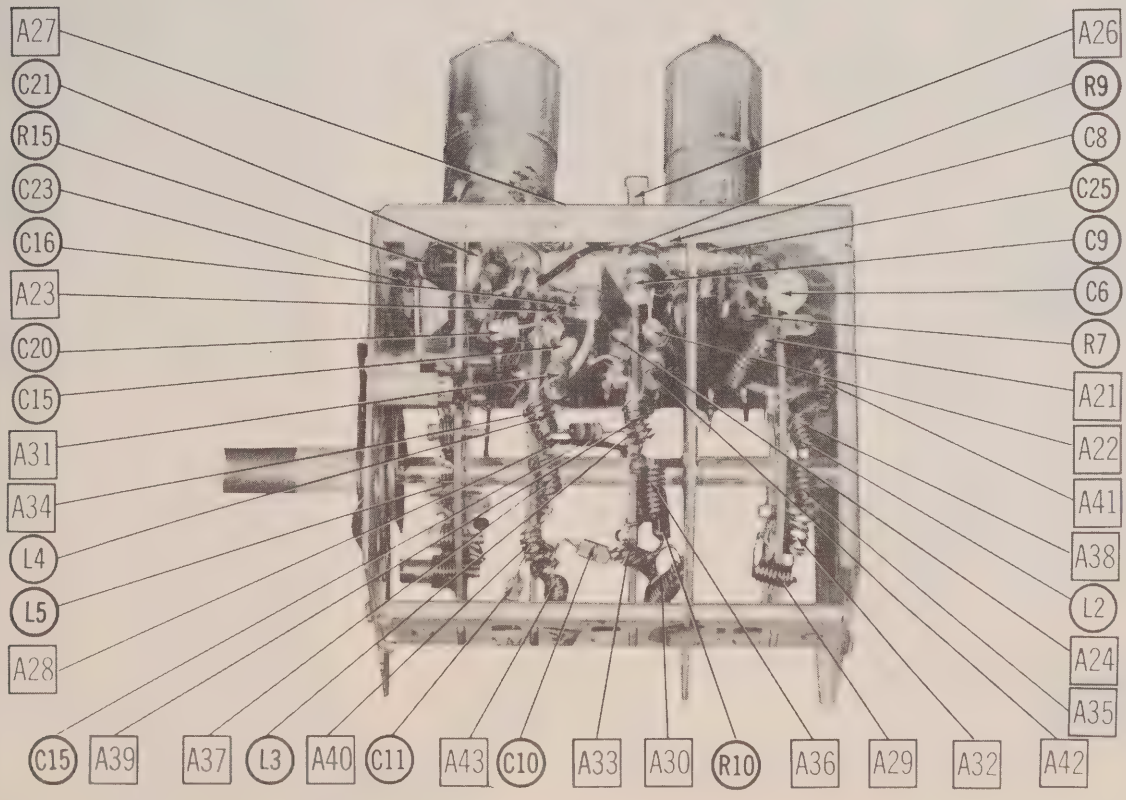
VHF Tuner Part #RJX-097

A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958

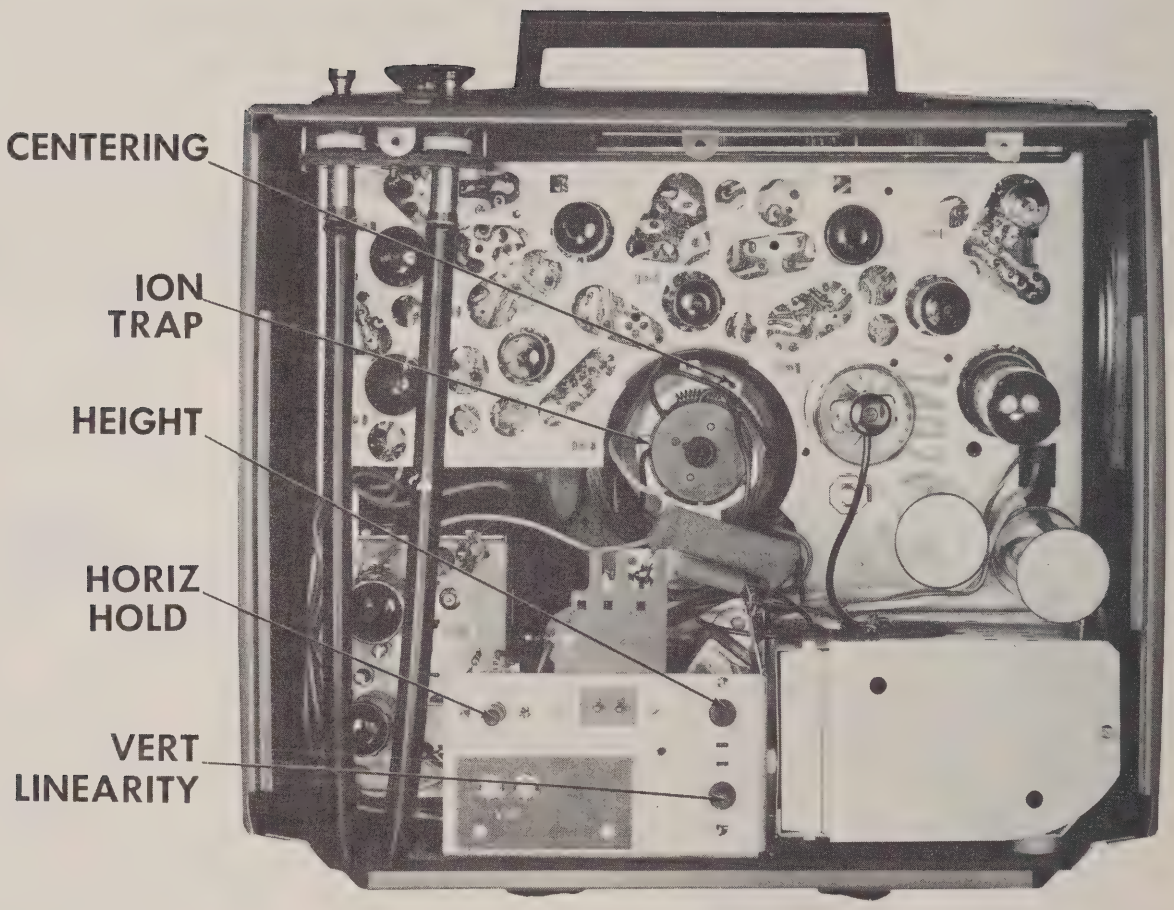
ALTERNATE TUNER SCHEMATIC



RF TUNER-LEFT SIDE



RF TUNER-RIGHT SIDE



CABINET—REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Tune the receiver to a weak signal and adjust the controls for a normal picture.

Connect a short clip lead from point Ⓝ to point Ⓞ. Connect a 2200Ω resistor from point Ⓟ to point Ⓠ.

Adjust the horizontal hold control to the point where the picture appears to float back and forth across the screen.

Remove the 2200Ω resistor from across points Ⓟ and Ⓠ.

Adjust the horizontal frequency slug (B1) until the picture again floats back and forth across the screen. Remove the short from points Ⓝ and Ⓞ.

PHOTOFACT* Folder

PACKARD-BELL MODELS 21CC1, 21CT1 (Ch. 98C1)

TRADE NAME	Packard-Bell	MODELS	CHASSIS
		21CC1, 21CT1	98C1
MANUFACTURER	Packard-Bell Co.-Service Div., 11th. & Hope Streets, Los Angeles 15, Calif.		
TYPE SET	Color Television Receiver		
TUBES	Thirty		
POWER SUPPLY	110-120 Volts AC, 60 Cycle	RATING 400 Watts, 3.8 Amp. @ 117 Volts AC	
TUNING RANGE	Channels 2 thru 13 VHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier)		

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PACKARD-BELL MODELS 21CC1, 21CT1 (Ch. 98C1)

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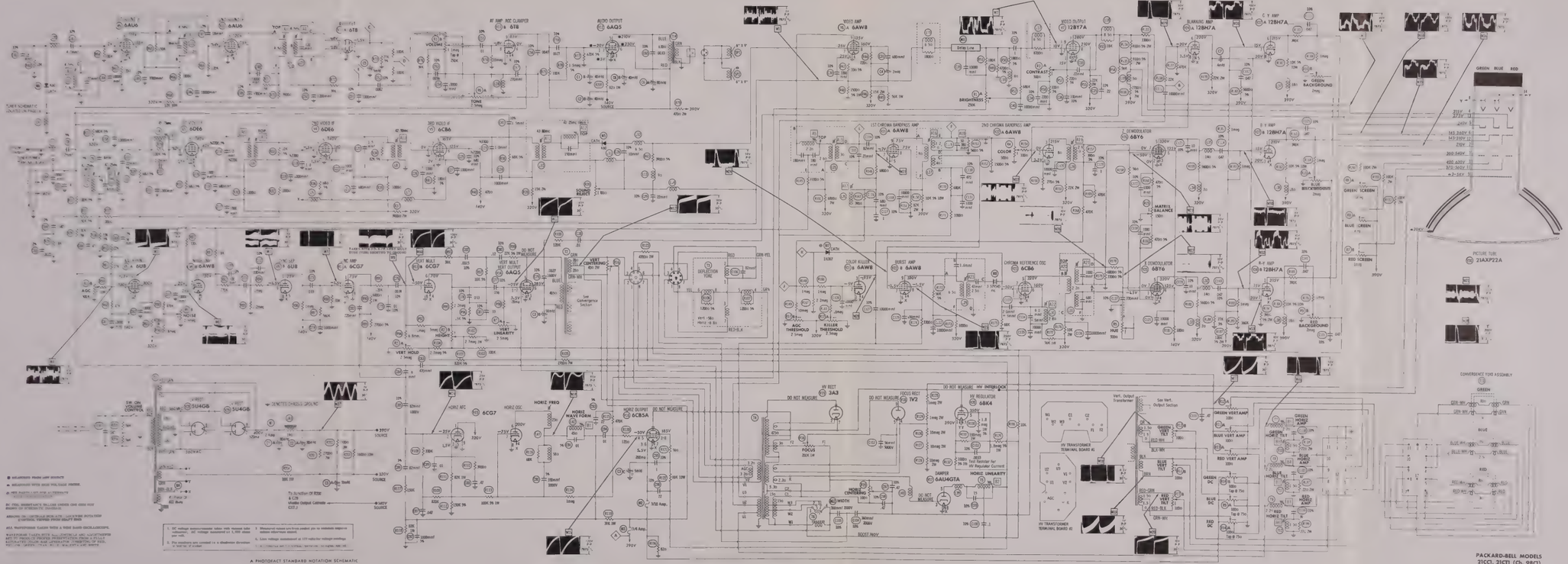
H101

FOLDER 3



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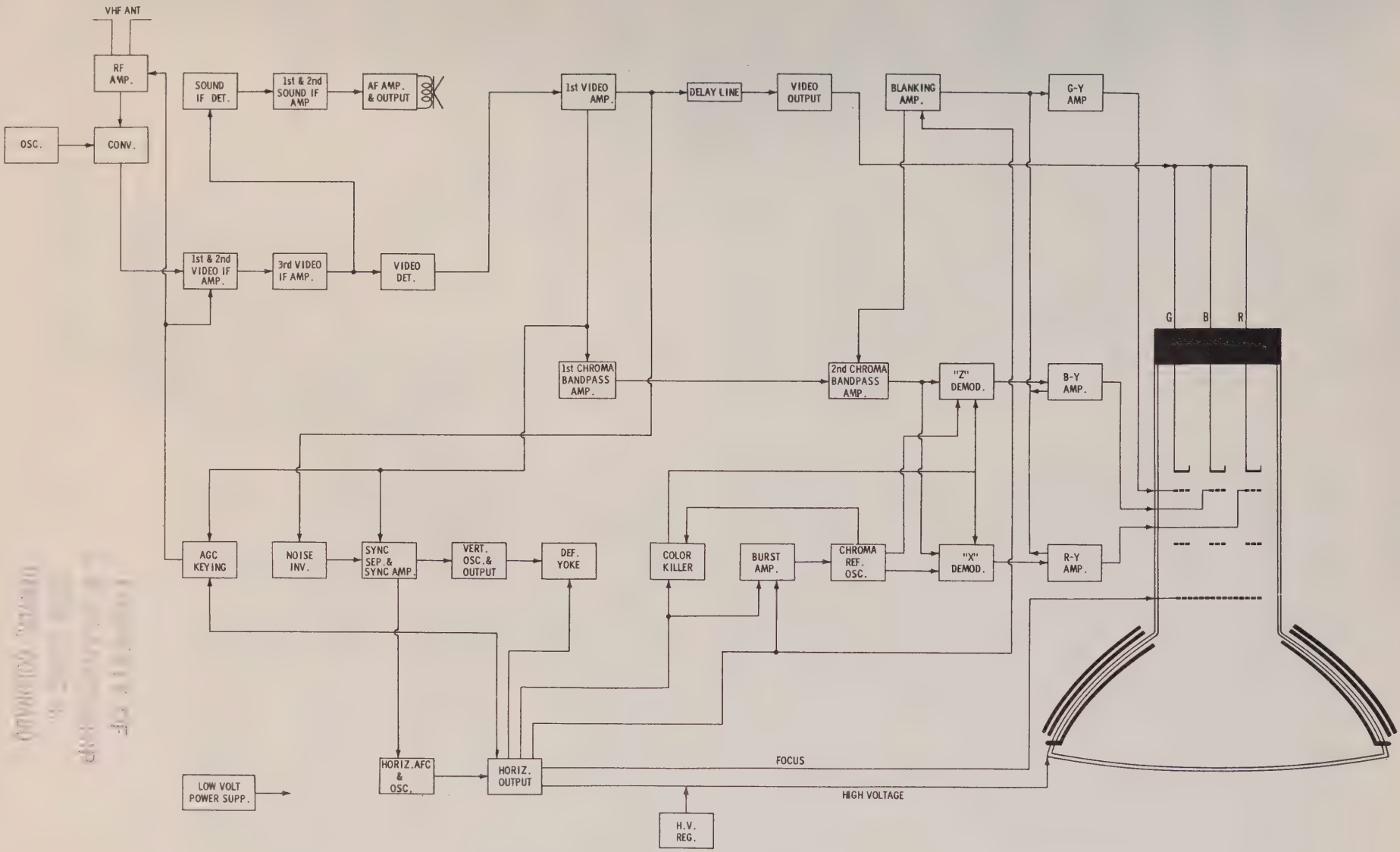


BLOCK DIAGRAM

PACKARD-BELL MODELS
21C1, 21CT1 (Ch. 98C1)

SET 386 FOLDER 3

PAGE 3

FOLDER 3

MISCELLANEOUS ADJUSTMENTS

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a TV station, preferably with a test pattern. Set the width switch on the rear of the high voltage compartment to the center position.
Adjust the controls if necessary to synchronize the picture.
Connect the vertical amplifier of the scope thru a low capacity probe to terminal "J" of the horizontal oscillator printed board. Adjust the horizontal waveform slug (B1) for a waveform similar to Fig. 11 with the round and sharp peaks having the same amplitude. During this adjustment, keep the picture in sync with the horizontal hold.
Rotation of the horizontal hold should cause the picture to lose sync at either end of its rotation. From counter clockwise position, the picture should pull in sync with between 1 and 3 bars present. The picture should remain in sync for three complete turns clockwise from the pull-in position.
The proper setting for the horizontal hold is one full turn counter clockwise from the pull-in point when turning from the full clockwise position. Adjust the focus control for proper focus.
Turn the receiver off and connect the DC probe of the VTVM thru a high voltage probe to the cup at the base of the high voltage rectifier tube (V19). Common to chassis. Remove the 3/10 amp. fuse (M2) in the cathode circuit of the horizontal output tube (V16). Connect a 0 to 500 MA meter across the terminals of the fuse holder. Turn the receiver on and turn brightness and contrast controls fully counter clockwise. The high voltage should measure between 18 and 22 KV.
While observing the reading on the milliammeter, adjust the horizontal linearity slug (B2) for MINIMUM meter reading. This current reading should be approximately 200 MA, but not to exceed 220 MA.
Test the high voltage regulator operation by connecting a VTVM across the 1000Ω resistor in the cathode circuit of the regulator tube (pin 1 of V20). With the brightness and contrast control turned fully counter clockwise, a MINIMUM reading of .8 volts should be obtained, which with 20 KV high voltage, indicates a beam power of 16 watts (.8 volts divided by 1000Ω equals 800 microamperes, 20 KV times .0008 amperes equal 16). If less than 16 watts are obtained, adjust the horizontal linearity slug (B2) for less inductance until sufficient meter reading is obtained to indicate 16 watts, but do not let the current exceed 220 MA.

AUTOMATIC FREQUENCY AND PHASE CONTROL ADJUSTMENT

Connect a color bar generator to the antenna terminals. Switch the receiver to channel 3 and tune the generator in on the receiver. Adjust the fine tuning on the receiver until no sound bars are visible in the picture.
Turn the color, hue and contrast controls to the center of their ranges.
Turn the killer threshold control fully counter clockwise. Make sure that the chroma reference oscillator is operating by checking for a DC voltage at pin 1 (grid) of the 6CB6 (V23). If the oscillator is functioning and no burst or RF signal is present, the reading should be between -1 and -3 volts. With a burst signal the reading should be between -4 and -7 volts.
Short the burst signal by connecting a .25mfd capacitor from pin 7 (grid) of the 6AW8 (V22B) to chassis.
Connect the negative DC probe of the VTVM to point (K). Common to chassis. Adjust A22 for a reading of -6 volts. This adjusts the feedback and the oscillator output level. Carefully adjust A23 for zero beat as observed on the picture tube screen or a scope connected to any one of the picture tube grids. This will tune the chroma reference oscillator. However A23 and A22 interact, therefore, repeat adjustment of both until zero beat and -6 volts are obtained simultaneously. Remove the capacitor from pin 7 of V22. The meter should now read approximately -15 volts.
Connect the DC probe of the VTVM to point (J). Common to chassis. Connect a .25mfd capacitor from point (J) to point (L). This will bypass the incoming signal to simulate a no signal condition. Adjust the AGC threshold control (R17A) for a VTVM reading of -.5 volts. Remove the capacitor and VTVM.

MATRIX ALIGNMENT

Connect the vertical amplifier of the scope to pin 2 (red grid) of the picture tube. Low side to chassis. Retouch A20 for correct R-Y signal as shown in Fig. 10. Move the scope connection to pin 12 (blue grid) and retouch A21 for correct B-Y signal as shown in Fig. 10. It may be necessary to recheck the waveform at the red grid since A20 and A21 interact. Adjust A20 and A21 until both R-Y and B-Y waveforms are correct on the proper grids.
Move the scope connection to pin 6 (green grid) of picture tube and, if necessary, make compromise adjustments of A20 and A21 until the best compromise adjustment is obtained for the three color patterns at the three grids.
Move the vertical amplifier of the scope first to the red grid and then the blue grid and adjust the matrix balance control (R15) until the peak to peak amplitude of the signal on the blue grid (pin 12) is 60% of that on the red grid (pin 2). Move the scope connection to the green grid (pin 6). The peak to peak amplitude of the signal should be approximately 40.8% of the signal amplitude on the red grid and should not deviate more than 5% from this value.

KILLER THRESHOLD CONTROL ADJUSTMENT

Switch the receiver to a channel where no signal is being received and advance the contrast control until noise is seen on the screen. Turn the color control (R4) fully clockwise. Color should be present in the noise on the screen. Adjust the killer threshold control (R17B) until the color in the noise pattern just disappears.

PRELIMINARY CONVERGENCE ADJUSTMENTS

Connect the RF output of a dot generator to the antenna terminals.

STEP	ADJUST	REMARKS
1.	Red, blue and green horizontal amplitude and tilt slugs (B3, B4, B5, B6, B7 and B8).	Turn fully clockwise.
2.	Red, blue and green vertical amplitude controls.	Turn fully counter clockwise.
3.	Red, blue and green vertical tilt controls.	Set to mid-range.
4.	Red, blue and green DC controls and lateral positioning magnet.	Adjust to produce a white dot in center of screen. Keep receiver in focus during this adjustment.

COLOR PURITY

Focus, height, linearity, width, centering and preliminary convergence adjustments must be completed before proceeding with color purity adjustment. Check for correct positioning of the convergence coil yoke assembly, the purity magnet and lateral positioning magnet on the neck of the picture tube.

STEP	ADJUST	REMARKS
1.	Six equalizing magnets.	Turn fully counter clockwise.
2.	If the picture tube and chassis are to be degaussed, it should be done at this time.	
3.	Red, blue and green DC controls and lateral positioning magnet.	Connect dot generator and adjust to obtain white dot in center of screen.
4.	Color control	Turn fully counter clockwise.
5.	Contrast and brightness controls.	Remove generator connection and adjust for normal raster illumination.
6.	Yoke (Deflection)	Turn blue and green screen controls fully counter clockwise. Loosen yoke wing nuts and slide yoke as far to rear as possible without disturbing convergence yoke assembly.
7.	Purity magnet.	Adjust by rotating it around neck of tube and adjusting tabs on magnet at the same time for a uniform red screen near the center. DO NOT spread the two red tabs any further apart than necessary to obtain the required results.
8.	Yoke (Deflection).	Move the yoke forward and find proper position for best overall red screen uniformity without neck shadow. Repeat steps 7 and 8 until the most uniform red field is obtained. Check the color purity of the green and blue fields separately and, if necessary, make compromise adjustment of purity magnet, so that any impurities present are concentrated near the outer edges of the raster. After any adjustment of the purity magnet, recheck convergence at center of screen as per step 3
9.	Equalizing magnets.	Adjust the magnets (around edge of picture tube)to correct for any impurities that may exist in the areas of the individual magnets.

GRAY SCALE ADJUSTMENTS

Tune in a TV station, preferably with a test pattern.
Set all screen, background, contrast and brightness controls fully counter clockwise.
Connect the DC probe of the VTVM to pin 4 (red cathode) and common to pin 2 (red grid) of the picture tube. Adjust red background control for a reading of 130 volts.
Adjust the contrast control for a red picture. If necessary, turn up the brightness control a little to obtain this condition.
Observing the normally white areas (highlights), adjust the blue and green background controls until a grayish white is obtained.
Turn the contrast control fully counter clockwise.
Adjust brightness control for 90 volts on the VTVM. Remove the VTVM connections.
Adjust the contrast control until a picture is visible, then counter clockwise until the picture is just extinguished.
Adjust the red screen control until the dark or lowlight areas are just visible.
Adjust the blue and green screen controls until the lowlight areas are dark gray.
NOTE: The red, green and blue screen controls should be adjusted so that the lowlight (dark) areas are dark gray. The red, green and blue background controls are adjusted so that the highlight areas are white.

MISCELLANEOUS ADJUSTMENTS (cont.)

DYNAMIC CONVERGENCE ADJUSTMENTS

Repeat the preliminary convergence adjustments, if necessary.
Connect a 100K resistor from red and green grids to chassis.
Using a dot generator think of the dots as lines of red, blue and green dots, so that the lines or bars mentioned below could refer to the lines of dots.

STEP	ADJUST	REMARKS
1.	Blue horizontal amplitude (B4).	Turn counter clockwise until blue horizontal line bows in.
2.	Blue horizontal tilt (B7).	Adjust until bow appears in center of the horizontal axis of the raster.
3.	Readjust blue horizontal amp. and tilt slugs for a reasonably straight line along the horizontal axis of the raster.	
4.	Red vertical amplitude and tilt controls.	Remove 100K resistor between red grid and chassis. Adjust until red vertical line along the vertical axis of the raster is straight.
5.	Blue vertical amplitude and tilt controls.	Adjust until blue vertical lines are equally spaced or are coincident with their associated red vertical lines along the vertical axis. Remove the 100K resistor from the green grid and chassis.
6.	Green vertical amplitude and tilt controls.	Adjust until green vertical line is parallel to or coincident with the associated red vertical line along the vertical axis. The red and green vertical lines should now be equally spaced along the vertical axis; if not, repeat steps 4, 5 and 6.
7.	Red horizontal amplitude (B3) and tilt (B6).	Reconnect 100K from green grid to chassis. Adjust until the red and blue horizontal lines are equally spaced (or coincident) along the horizontal axis.
8.	Blue horizontal amplitude (B4) and tilt (B7).	Adjust until blue and red horizontal lines are parallel along the horizontal axis. Remove the 100K from the green grid and connect to the blue grid.
9.	Green horizontal amplitude (B5) and tilt (B8).	Adjust until the red and green horizontal lines are equally spaced (or coincident) along the horizontal axis. The red and green lines should now be parallel (or coincident); if not, repeat steps 7, 8 and 9.
10.	Remove the 100K from the blue grid and statically converge the three patterns in the center of the raster. Repeat steps 1 thru 9, if necessary until acceptable convergence is obtained.	
11.	Connect antenna to receiver and tune in a black and white picture. Check for good gray scale. The screen should remain a neutral gray throughout the range of the brightness control. If improper tracking is obtained, repeat the gray scale adjustments.	

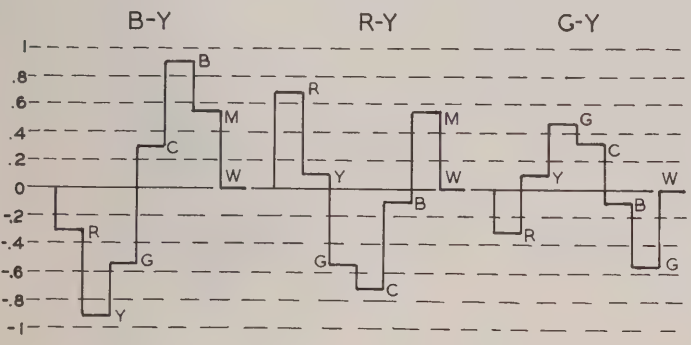


FIG. 10

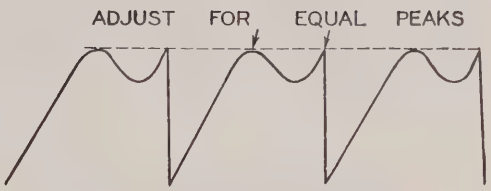
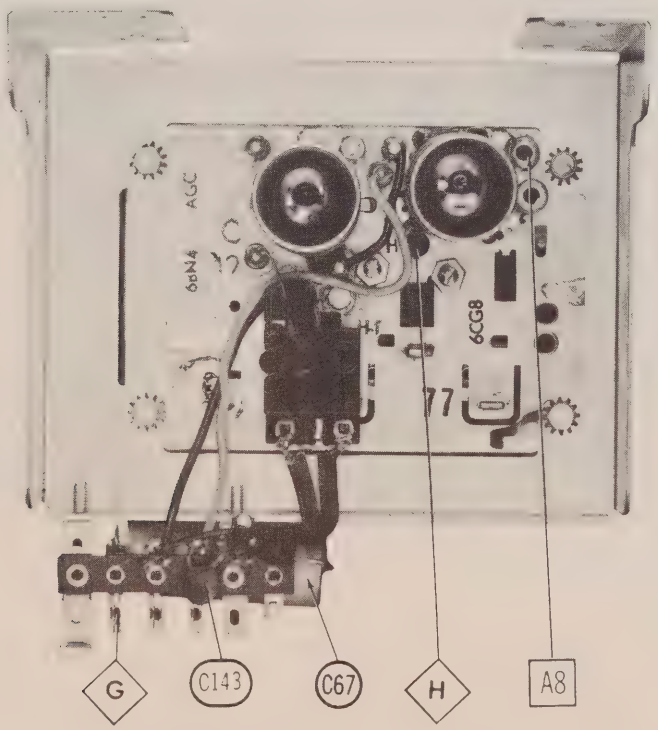


FIG. 11



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RF TUNER—TOP VIEW
SET 386 FOLDER 3

ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

Remove the 3/4 Amp. fuse (M3) from its socket and connect a 2500Ω, 100 watt resistor from point Ⓐ to chassis. Connect the negative lead of a 9 volt bias supply to point Ⓑ. Positive to chassis. DO NOT remove this bias until the fuse (M3) is placed back in its socket.

SOUND IF ALIGNMENT

Connect two matched 100K (±1%) resistors in series from point Ⓒ to chassis. The junction of these two resistors is alignment point Ⓒ as shown on the schematic

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
1.	.005mfd	High side to terminal "P" on sound-sync printed board. Low side to chassis	4.5MC (Unmod)	Any non-interfering channel	DC probe to point Ⓒ. Common to chassis.	A1, A3, A5, A6	Adjust for maximum deflection. Adjust generator output for a -14 volt deflection.
2.	"	"	"	"	DC probe to point Ⓓ. Common to point Ⓒ.	A4	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

4.5MC TRAP ALIGNMENT

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
3.	.005mfd	High side to terminal "D" on video printed board. Low side to chassis	Not used	4.5MC (400~ 30% AM)	Any non-interfering channel	Vert. Amp. thru detector probe to point Ⓓ. Low side to chassis.	A5	Adjust for MINIMUM 400~ indication.

VIDEO IF ALIGNMENT

Connect a jumper from point Ⓔ to terminal "G" of sound-sync printed board.
If a separate marker generator is used, couple loosely to the sweep generator output lead.
Bottom shield of the IF strip should remain in place during alignment.
Connect the synchronised sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide a usable pattern on scope.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
4.	1500mmf Ceramic Capacitor	High side to pin 1 (grid) of 6DE4 (V3) Low side to chassis.	44.0MC (30MC Swp)	43.17MC 45.75MC	Any non-interfering channel	Vert. Amp. thru detector (Fig. 1) to pin 5 (plate) of 8DB8 (V4). Low side to chassis.	A6, A7	Attenuate sweep generator output for .1 volt peak to peak on scope. Adjust A6 and A7 for response similar to Fig. 2. A6 shifts the response curve and A7 tilts the flat portion. The markers should be equally displaced from base line and within tolerances shown.
5.	"	High side to point Ⓕ. Low side to chassis.	Not used	45.75MC (Unmod)	"	USE VTVM. DC probe to terminal "D" of video printed board. Common to chassis.	A8, A9	Connect clip lead from terminal "C" of video printed board to chassis. Set sound rejection control (R20) to center of its range. Use only enough generator output to provide a usable indication on VTVM. Adjust for maximum deflection.
6.	"	"	"	43.5MC	"	"	A10	Adjust for maximum deflection.
7.	"	"	"	43.8MC	"	"	A11	"
8.	"	"	"	41.25MC	"	"	A12, R30	Detune A14 and increase signal. Adjust A12 and R30 for MINIMUM deflection.
9.	"	"	"	47.25MC	"	"	A13	Adjust for MINIMUM deflection.
10.	"	"	"	41.25MC	"	DC probe to terminal "P" on sound-sync printed board. Common to chassis.	A14	Adjust for MINIMUM deflection. Recheck step 7.
11.	Fig. 3	High side to point Ⓖ thru termination pad (Fig. 3). Low side to chassis.	44.0MC (30MC Swp)	43.17MC 43.75MC 45.0MC 45.75MC	Any non-interfering channel	Vert. Amp. thru 10K to terminal "D" on video printed board. Low side to chassis.		Connect the negative lead of a 3 volt bias supply to point Ⓑ. Positive to chassis. Remove ground from terminal "C" of video printed board. If necessary, retouch A8, A10 and A11 SLIGHTLY to obtain response similar to Fig. 4 with markers as shown.
12.	"	"	Not used	45.75MC (800~ 30% AM)	"	Vert. Amp. to terminal "P" on sound-sync printed board. Common to chassis.		Adjust generator output for 1.5 volts peak to peak on scope.
13.	"	"	"	"	"	Vert. Amp. thru voltage divider (Fig. 5) to terminal "P" on sound-sync printed board. Low side to chassis.		Record scope deflection.
14.	"	"	"	41.25MC (800~ 30% AM)	"	Vert. Amp. to terminal "P" (using voltage divider connected. Low side to chassis.		DO NOT change any gain controls. If the scope deflection is smaller than that obtained in step 13, adjust A14 clockwise until deflection is same as in step 13. The 41.25MC signal is now 22db below the level of the 45.75MC signal. Remove all test equipment connections and replace bottom shield of sound-sync printed board.

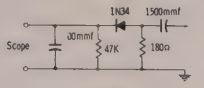


FIG. 1

FIG. 2

FIG. 3

FIG. 4

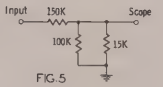


FIG. 5

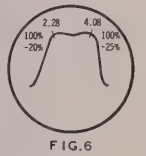


FIG. 6

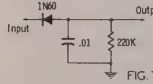


FIG. 7

VHF OSCILLATOR ALIGNMENT

Set the fine tuning at the center of its range. The adjustments are accessible, one at a time, as the channel selector is rotated. Adjust for best picture and sound.

VIDEO AND BANDPASS ALIGNMENT

Connect the negative lead of a 3 volt bias supply to point Ⓐ. Positive to chassis.
Connect the negative lead of a 9 volt bias supply to point Ⓑ. Positive to chassis.
Turn killer threshold and noise controls (R47B and R6B) fully counter clockwise.
Adjust video sweep generator to an output below the point where overload is visible on the scope in step 15.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
15.	.005mfd	High side of video sweep generator to terminal "D" on video printed board. Low side to chassis.	3.0MC (8MC Swp)	2.28MC 4.08MC	Any non-interfering channel	Vert. Amp. thru detector probe (Fig. 7) to point Ⓒ. Low side to chassis.	A15, A16, A17, A18	Adjust A15 and A18 for maximum response at 4.08MC marker. Adjust A17 for maximum response at 2.28MC marker. Adjust trimmer A16 for equal gain at 2.28 and 4.08MC. Retouch A15, A17 and A18 for response as shown in Fig. 8. DO NOT adjust A17 below 2.28MC
16.	"	"	"	"	"	Vert. Amp. thru detector probe (Fig. 7) to pin 5 (plate) of 6BY6 (V2B). Low side to chassis.	A19	Turn color control (R4) 3/4 turn from fully counter clockwise. Ground pin 7 of 6BY6 (V2B) to remove 3.58MC signal. Connect 330Ω in series with .25mfd (600V) capacitor from pin 5 (plate) of 6BY6 (V2B) to chassis with capacitor on the chassis side. Adjust A19 for flat response between markers as in Fig. 8.
17.	Not used	Not used	Not used	Not used	"	USE VTVM. DC probe thru detector (Fig. 7) to pin 7 of 6BY6 (V2B). Common to chassis.	A20	Remove series test circuit and grounding lead used above. Rotate the hue control (R5) and observe the meter readings at the extreme positions of the control. Adjust A20 so that the readings are the same for both end positions. Leave the hue control at the MINIMUM reading (electrical center) which should correspond roughly with mechanical center.
18.	"	"	"	"	"	USE VTVM. DC probe thru detector (Fig. 7) to pin 7 of 6BY6 (V2B). Common to chassis.	A21	Adjust for maximum deflection.
19.	.005mfd	High side of video sweep generator to terminal "D" on video printed board. Low side to chassis.	3.0MC (8MC Swp)	2.28MC 4.08MC	"	Vert. Amp. thru scope diode probe to pin 1 (plate) of 12BH7 (V3AB). Low side to chassis.		Check for response similar to Fig. 9.
20.	"	"	"	"	"	Vert. Amp. thru scope diode probe to pin 1 (plate) of 12BH7 (V3TB). Low side to chassis.		"
21.	"	"	"	"	"	Vert. Amp. thru scope diode probe to pin 8 (plate) of 12BH7 (V3TA). Low side to chassis.		"

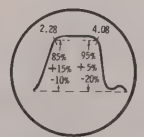


FIG. 8

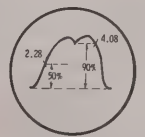
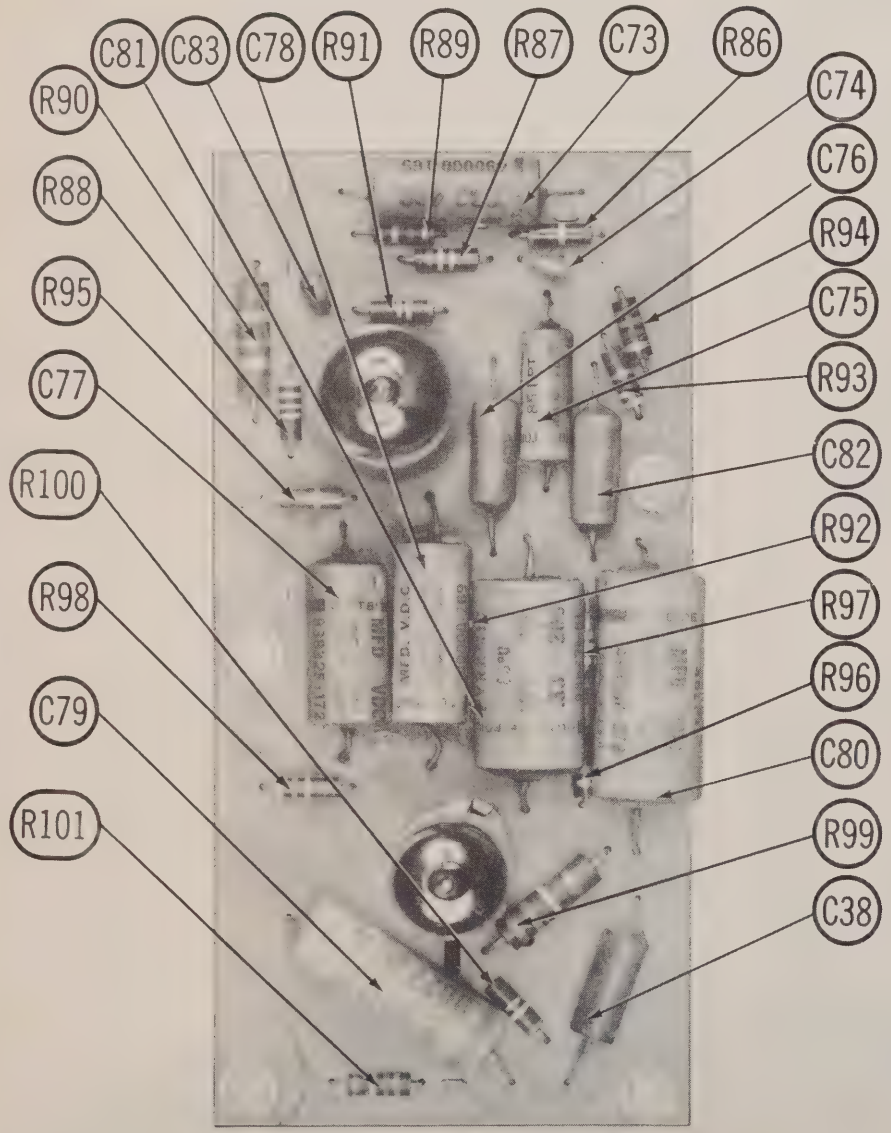


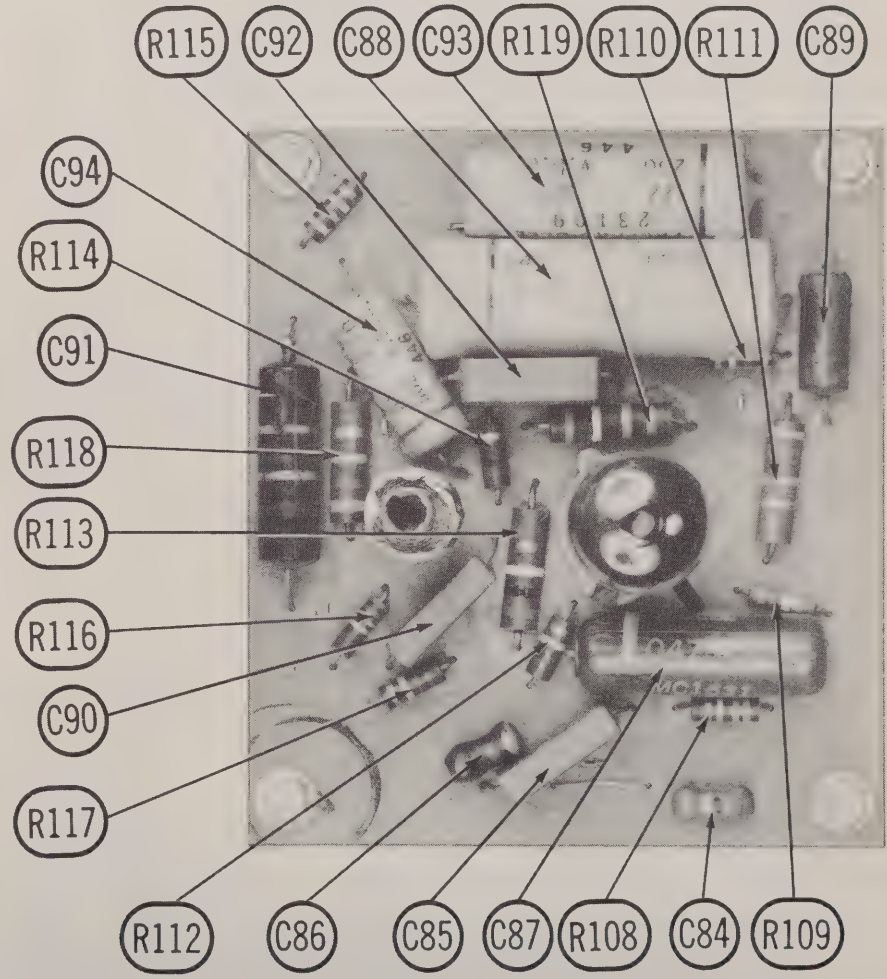
FIG. 9

PACKARD-BELL MODELS 21CC, 21CTI (Ch. 98C1)

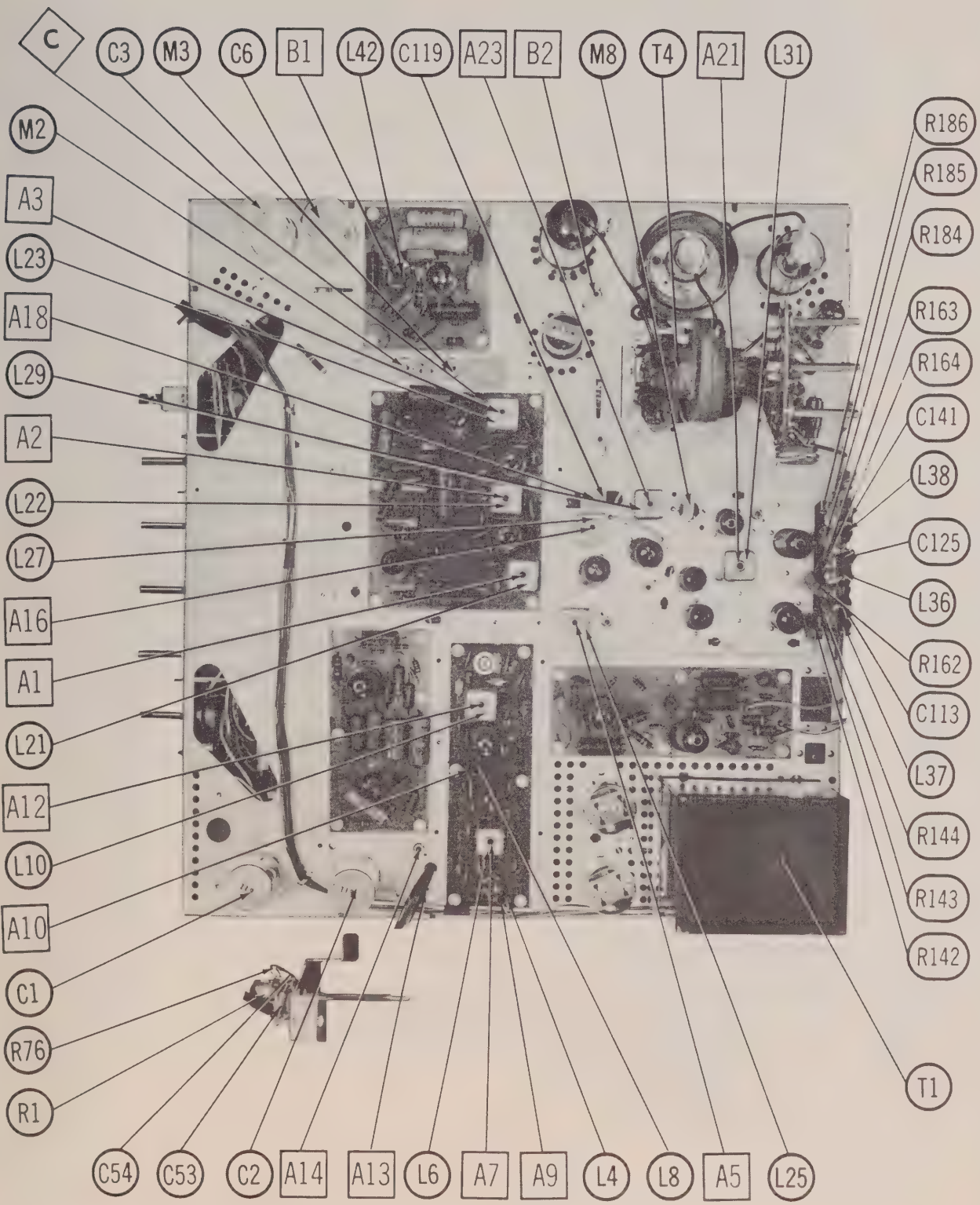
FOLDER 3



VERTICAL PRINTED BOARD



HORIZONTAL PRINTED BOARD



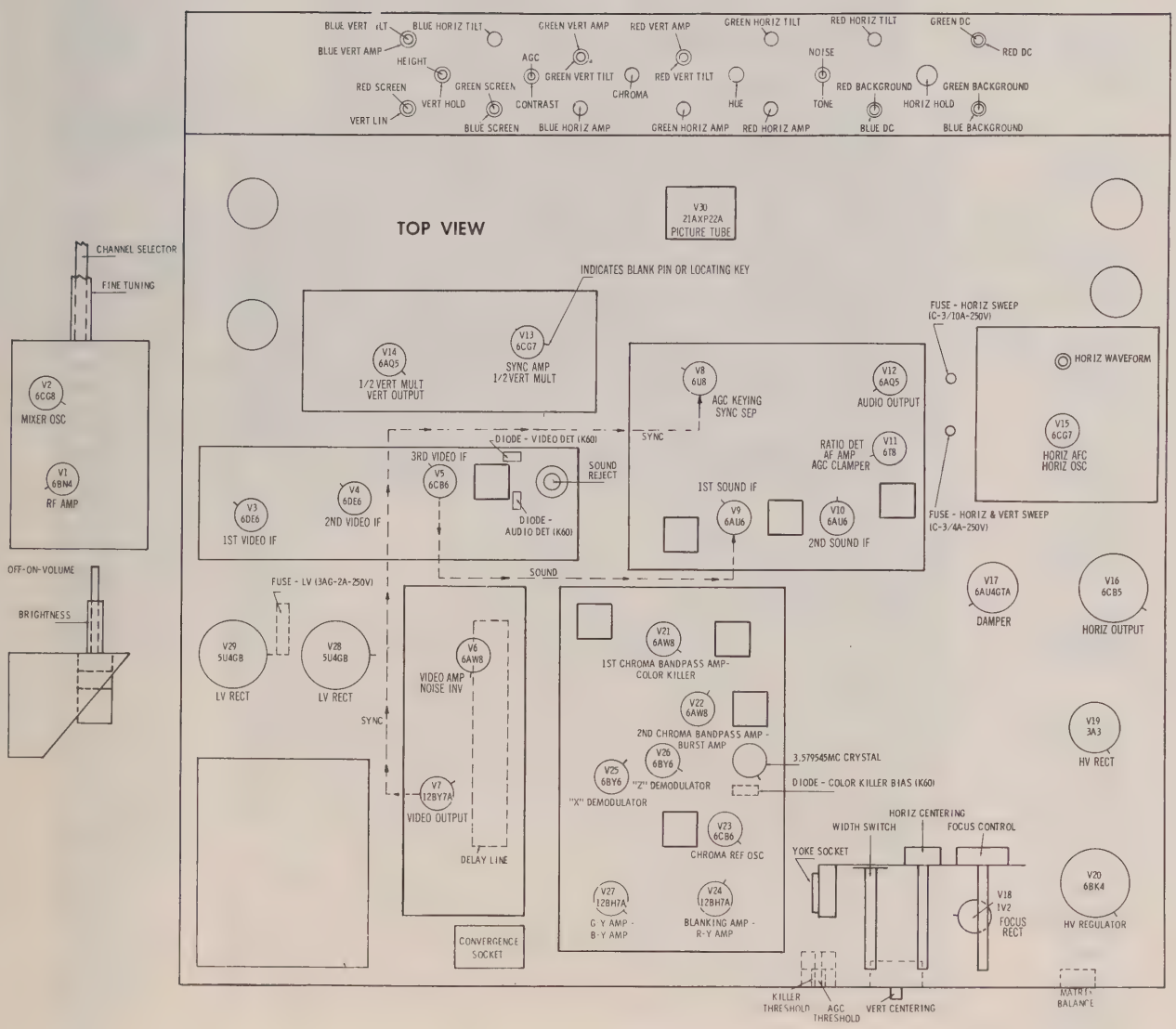
CHASSIS TOP VIEW

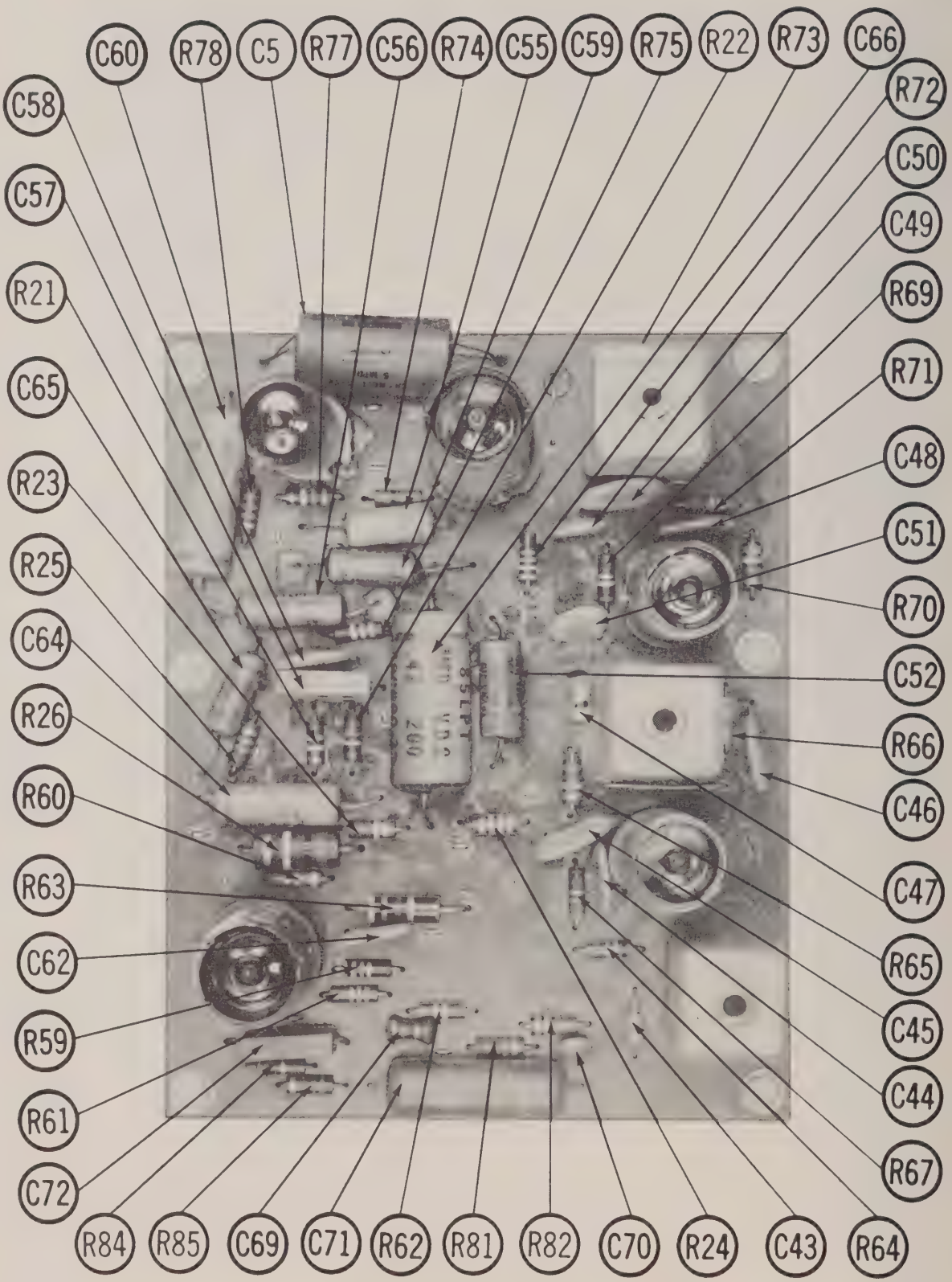
RESISTANCE MEASUREMENTS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6BN4	0Ω	200K	0Ω	.1Ω	▪ 1000Ω	0Ω	200K		
V2	6CG8	10K	▪ 6800Ω	0Ω	0Ω	.1Ω	▪ 1000Ω	▪ 10K	0Ω	224K
V3	6DE6	34K	68Ω	0Ω	.1Ω	† 5300Ω	† 5300Ω	0Ω		
V4	6DE6	35K	68Ω	0Ω	.1Ω	† 5300Ω	† 5300Ω	0Ω		
V5	6CB6	.2Ω	180Ω	.1Ω	0Ω	† 16K	▪ 470Ω	0Ω		
V6	6AW8	1000Ω	• 850K	† 26K	0Ω	.1Ω	700Ω	4600Ω	† 12K	† 7500Ω
V7	12BY7A	• 180Ω	900K	0Ω	0Ω	0Ω	.1Ω	† 4500Ω	† 23K	0Ω
V8	6U8	1meg	• 40K	† 5600Ω	0Ω	.1Ω	260K	▪ 68Ω	0Ω	2.2meg
V9	6AU6	100K	0Ω	.1Ω	0Ω	† 15K	† 15K	120Ω		
V10	6AU6	120K	0Ω	.1Ω	0Ω	† 17K	† 31K	0Ω		
V11	6T8	INF	27K	INF	.1Ω	0Ω	230K	0Ω	10meg	† 330K
V12	6AQ5	530K	¶	.1Ω	0Ω	† 1100Ω	† 470Ω	530K		.
V13	6CG7	▪ 9500Ω	33K	0Ω	.1Ω	0Ω	• ‡4.7meg	• 1.9meg	0Ω	0Ω
V14	6AQ5	• 1.5meg	• 37Ω	.1Ω	0Ω	† 3000Ω	† 2600Ω	• 1.5meg		
V15	6CG7	† 600Ω	1.3meg	230K	.1Ω	0Ω	† 27K	250K	0Ω	0Ω
V16	6CB5A	† 10K	0Ω	24Ω	1.2meg	1.2meg	24Ω	.1Ω	† 10K	TOP CAP ‡33Ω
V17	6AU4GTA	NC	NC	¶	NC	† 24Ω	NC	0Ω	.1Ω	
V18	1V2	NC	NC	NC	30meg	30meg	NC	NC	NC	• ‡40K
V19	3A3	NC	INF	NC	NC	NC	NC	INF	NC	TOP CAP ‡480Ω
V20	6BK4	† 1000Ω	170K	NC	NC	900K	NC	170K	NC	TOP CAP INF
V21	6AW8	0Ω	1.2meg	950K	.1Ω	0Ω	0Ω	2.2meg	† 8700Ω	† 8700Ω
V22	6AW8	270Ω	• 150Ω	† 22K	.1Ω	0Ω	0Ω	680K	3300Ω	† 1600Ω
V23	6CB6	68K	0Ω	0Ω	.1Ω	† 10K	† 56K	0Ω		
V24	12BH7A	† 10K	1meg	390Ω	.1Ω	.1Ω	† 22K	470K	270Ω	0Ω
V25	6BY6	470K	490Ω	0Ω	.1Ω	† 6200Ω	▪ 100Ω	.1Ω		
V26	6BY6	470K	490Ω	.1Ω	0Ω	† 6200Ω	▪ 100Ω	.1Ω		
V27	12BH7A	† 10K	1meg	390Ω	0Ω	0Ω	† 10K	1meg	390Ω	.1Ω
V28	5U4GB	NC	¶	NC	10Ω	NC	10Ω	NC	¶	
V29	5U4GB	NC	¶	NC	10Ω	NC	10Ω	NC	¶	
V30	21AXP22A	28K	• 300K	• ‡250K	† 7800Ω	† 3600Ω	• 310K	• ‡370K	NC	32meg
		PIN 10 NC	PIN 11 • ‡290K	PIN 12 • 280K	PIN 13 † 2700Ω	PIN 14 28K				

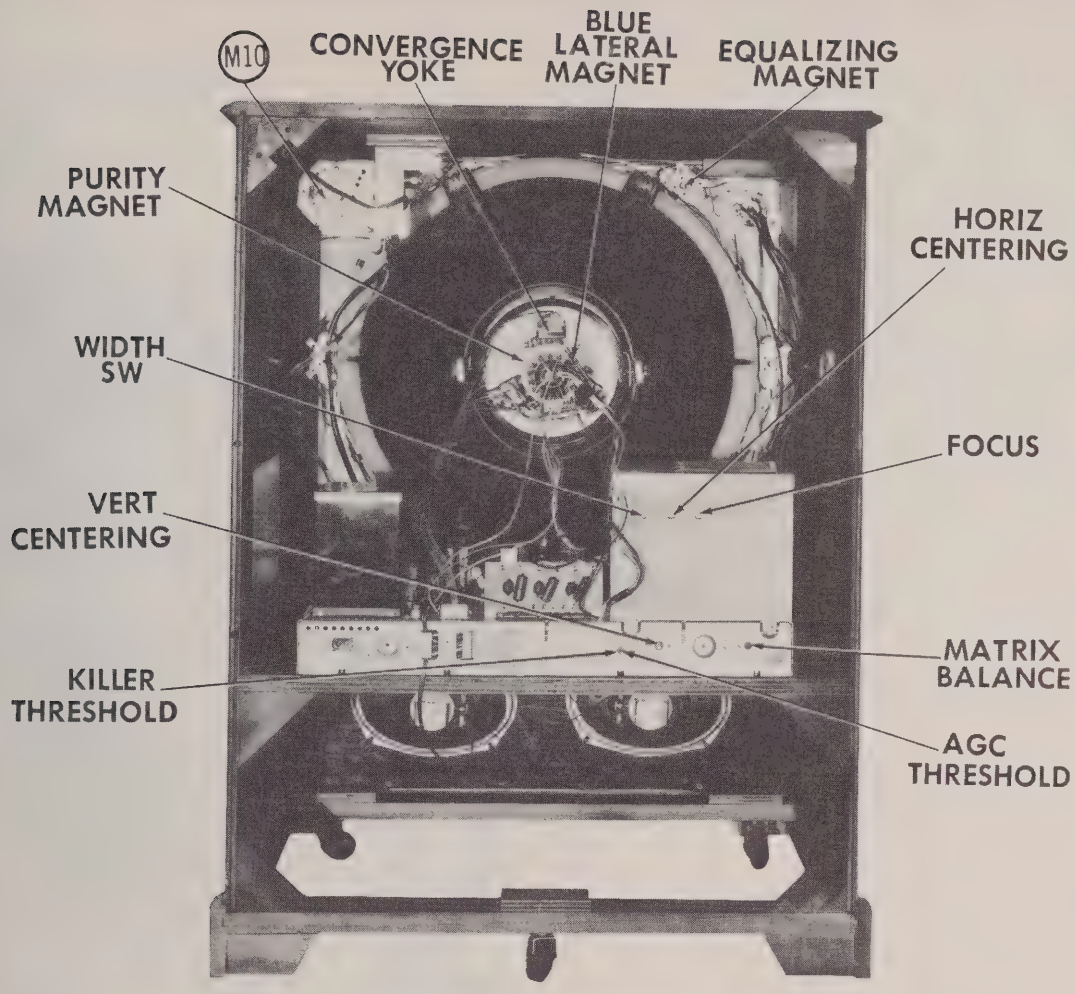
¶ THIS READING CAN VARY GREATLY, (10K MINIMUM), DUE TO THE CONDITION OF THE ELECTROLYTIC CAPACITOR CONNECTED IN THE ASSOCIATED CIRCUIT.
• THIS READING WILL VARY. CONTROL SET FOR NORMAL OPERATION.
† MEASURED FROM 390V SOURCE.
‡ MEASURED FROM PIN 3 OF V17.
▪ MEASURED FROM 140V SOURCE
NC NO CONNECTION.
TP TIE POINT.

TUBE PLACEMENT CHART





SOUND—PRINTED BOARD



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L F [illegible]
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DEN[illegible], COLORADO

CABINET—REAR VIEW

DISASSEMBLY INSTRUCTIONS

SAFETY GLASS REMOVAL

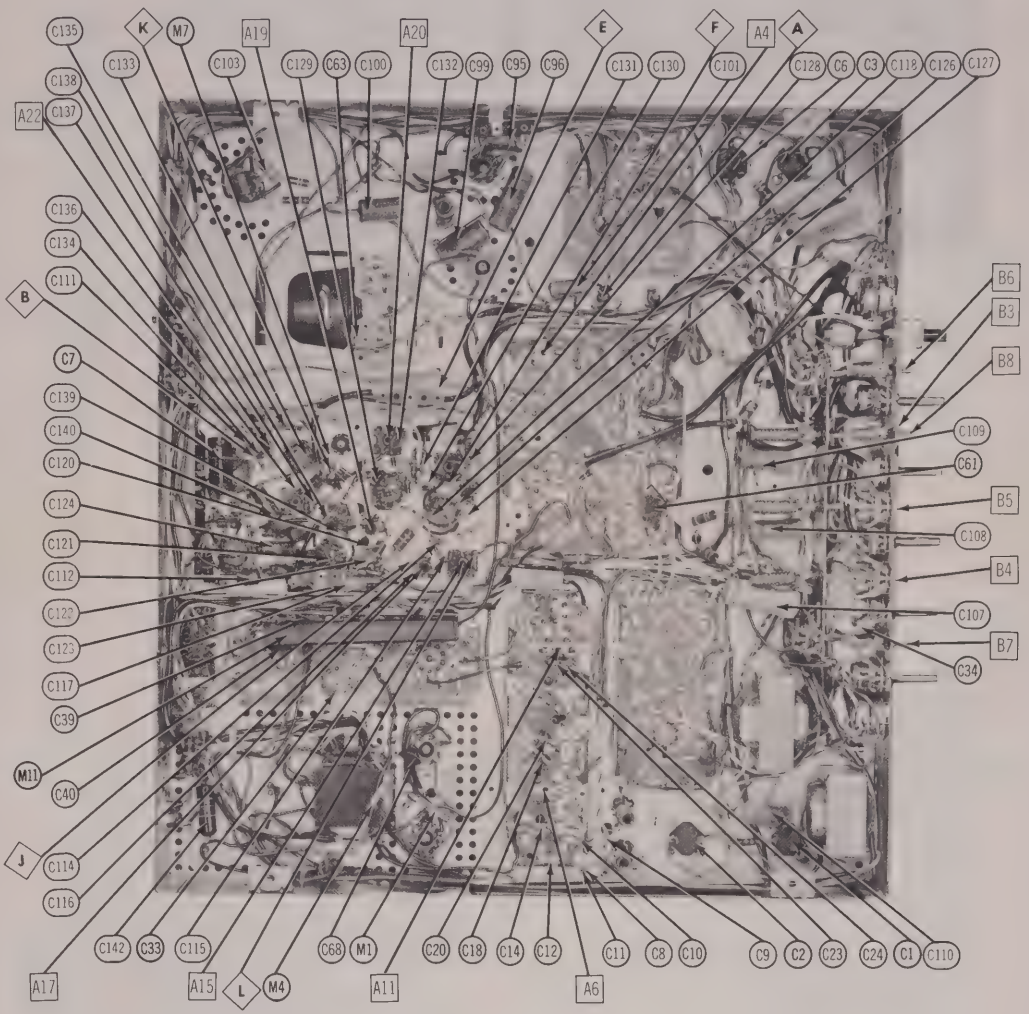
1. Remove 4 push-on type control knobs at the top of the safety glass and 5 inside the front control panel.
2. Remove 4 wood screws holding the control panel.
3. Remove the control panel and safety glass.

CHASSIS REMOVAL

1. Remove 4 push-on type control knobs from the front, 5 from inside the front control panel.
2. Remove 7 wood screws holding the rear cover and remove the rear cover.
3. Release clamp on volume control assembly and remove the control.
4. Remove the speaker leads, picture tube socket, yoke plug, convergence yoke plug, HV lead from the HV rectifier socket and tuner leads.
5. Remove 4 chassis bolts from the bottom.
6. Remove the chassis.
7. Remove 2 wood screws holding the antenna terminal board.
8. Remove 4 wood screws holding the tuner and remove the tuner.

PICTURE TUBE REMOVAL

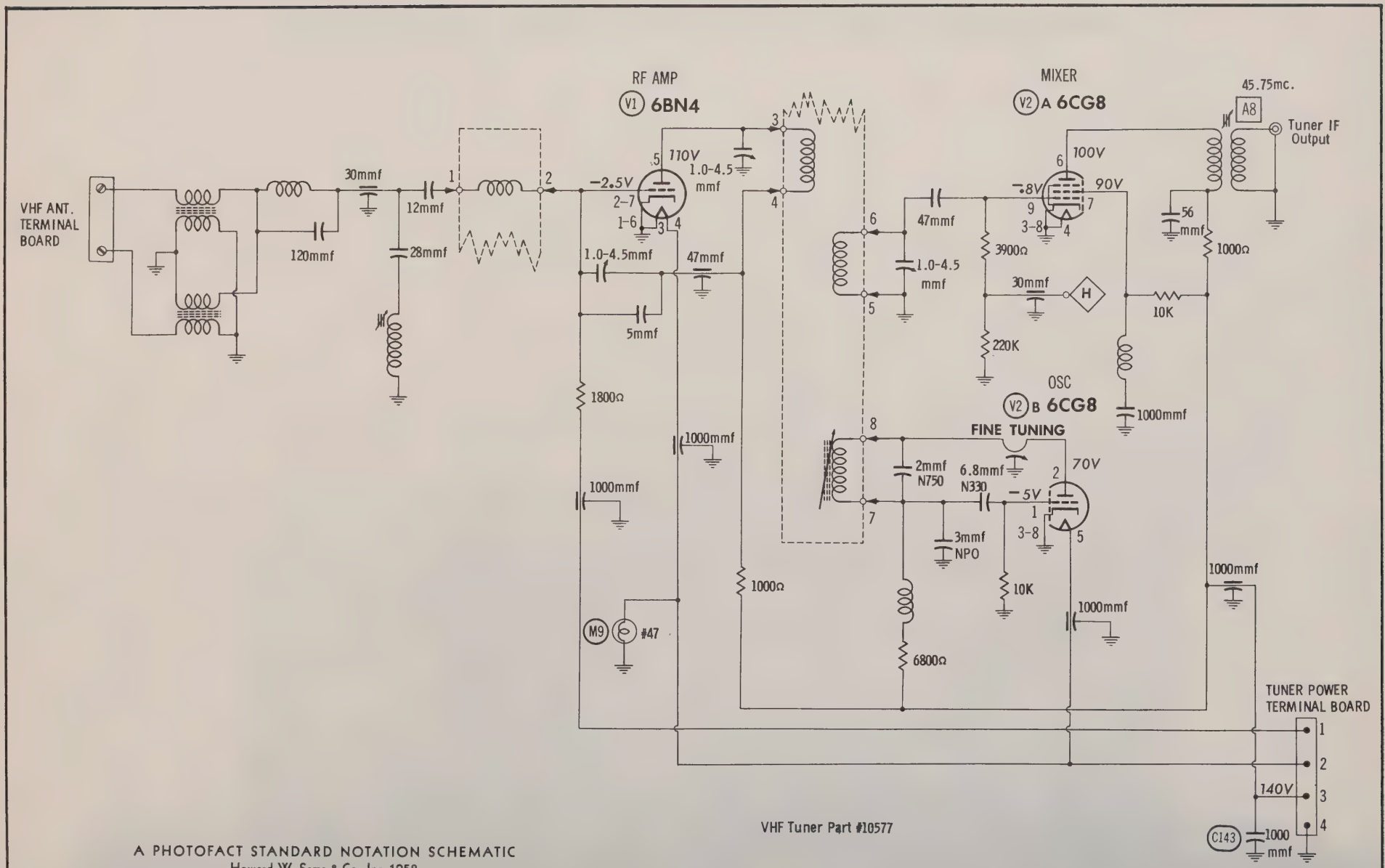
1. Remove the chassis.
2. Place receiver face down on a pad.
3. Remove the blue lateral magnet, purity magnet and convergence yoke assembly.
4. Remove 4 hex nuts holding the picture tube and yoke to the front.
5. Remove the yoke and HV insulator.
6. Remove the picture tube.
7. Remove the flange insulator and HV anode clip.



CHASSIS BOTTOM VIEW-CAPACITOR AND ALIGNMENT IDENTIFICATION

PACKARD-BELL MODELS
21CC1, 21CT1 (Ch. 98C1)

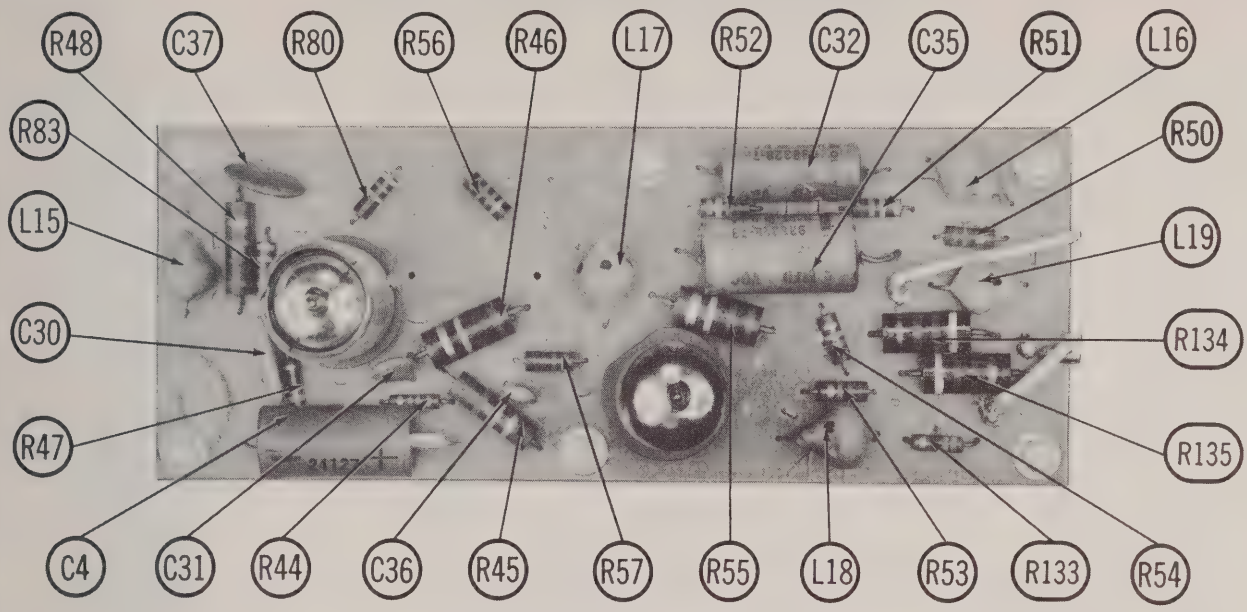
FOLDER 3



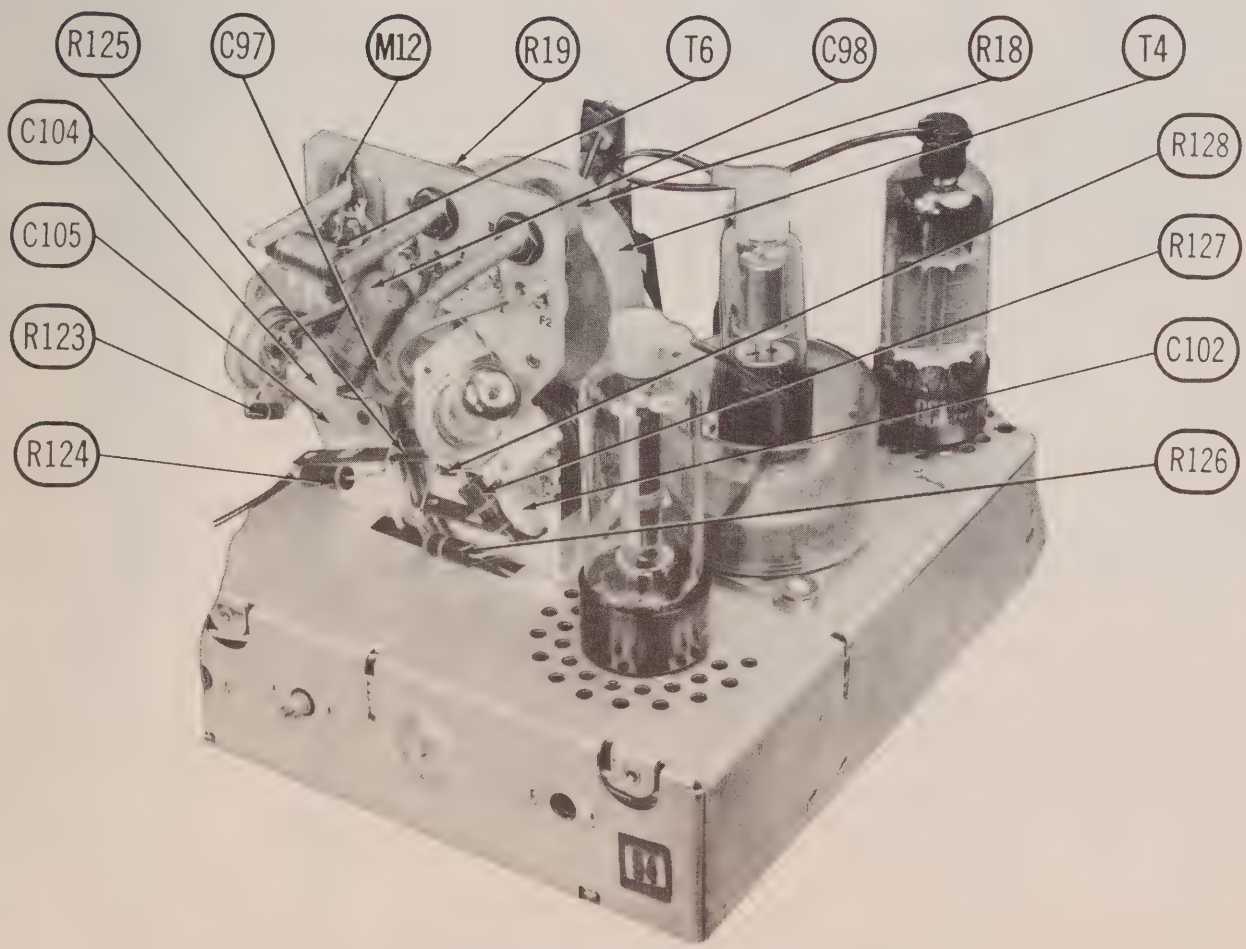
VHF Tuner Part #10577

A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958

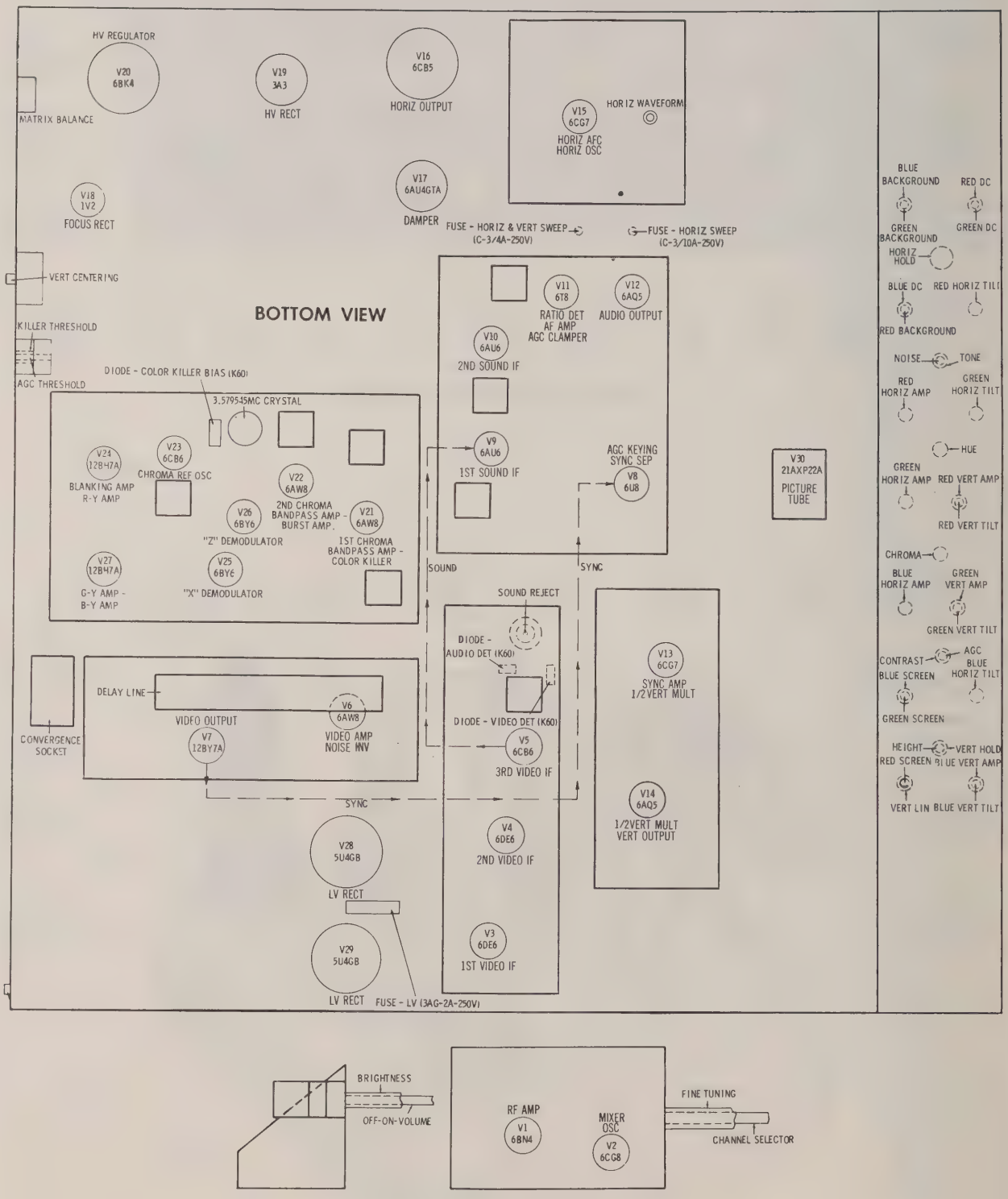
TUNER SCHEMATIC



VIDEO PRINTED BOARD



HIGH VOLTAGE COMPARTMENT



TUBE PLACEMENT CHART

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	RF Amplifier	6BN4	
V2	Mixer-Osc.	6CG8	
V3	1st. Video IF Amp.	6DE6	
V4	2nd. Video IF Amp.	6DE6	
V5	3rd. Video IF Amp.	6CB6	
V6	Video Amp. -Noise Inv.	6AW8	
V7	Video Output	12BY7A	
V8	AGC Keying-Sync Sep.	6U8	
V9	1st. Sound IF Amp.	6AU6	
V10	2nd. Sound IF Amp.	6AU6	
V11	Ratio Det. -AGC Clamper-AF Amp.	6T8	
V12	Audio Output	6AQ5	
V13	Sync Amp. -Vert. Mult.	6CG7	
V14	Vert. Mult. -Vert. Output	6AQ5	
V15	Horiz. AFC-Horiz. Osc.	6CG7	
V16	Horiz. Output	6CB5A	
V17	Damper	6AU4GTA	
V18	Focus Rectifier	1V2	
V19	HV Rectifier	3A3	
V20	HV Regulator	6BK4	
V21	1st. Chroma Bandpass Amp. - Color Killer	6AW8	
V22	2nd. Chroma Bandpass Amp - Burst Amp.	6AW8	
V23	Chroma Reference Osc.	6CB6	
V24	Blanking Amp. - R-Y Amp.	12BH7A	
V25	"X" Demodulator	6BY6	
V26	"Z" Demodulator	6BY6	
V27	G-Y Amp. - B-Y Amp.	12BH7A	
V28	LV Rectifier	5U4GB	
V29	LV Rectifier	5U4GB	

PICTURE TUBE

ITEM No.	REPLACEMENT DATA			NOTES
	Packard-Bell PART No.	GENERAL ELECTRIC PART No.	SYLVANIA PART No.	
V30	21AXP22A	21AXP22A	21AXP22A	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	Packard-Bell PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	▲80	450	24126	AFH2-94-45	B0480		TMD-58	T-170	TVL-2720
B	▲40	200							
C2A	▲80	450	24126	AFH2-94-45	B0480	FP264.5	TMD-58	T-170	TVL-2720
B	▲40	200							
C3A	▲50	450	24125	AFH3-154-40	C1103.5	FP240		T-760	R2365 *
B	▲50	350				TC70		MT-4504	
C	■5	450							
C4	2	350	24127	PRS450V2	BR245	TC60	TD-2-450	MT-4502	TVA-1701
C5	5	50	24038	PRS50V5	BBR5-50	TC30	TD-5-50	MMT-0505	TVA-1303
C6A	▲80	450	24126	AFH2-94-45	B0480	FP264.5	TMD-58	T-170	TVL-2720
B	▲40	200							
C7	4	450	24124	PRS450V4	BR445	TC70	TD-4-450	FM-4504	TVA-1702

* Non-catalog item.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	Packard-Bell PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C8	12		23893		TCZ-12	C10Q12C	TCO-12			5%
C9	8		23872							5%
C10	8		23872							5%
C11	22		23876	NPO-SI 22	TCZ-22	C10Q22C	TCO-22		5TCC-Q22	5%
C12	2.2		23870	NPO-SI 2.2	TCZ-2R2	C10V22C	TCO-2.2		5TCCB-V22	N2200 5%
C13	1000		23965	BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1	
C14	1.0		23864							N2200 5%
C15	680		23886	BPD-00068	DD-681	BYA10D68	ED-680	UC-5368	5GA-T68	
C16	1000		23965	BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1	
C17	1000		23965	BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1	
C18	1.0		23865							N3300
C19	1000		23965	BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1	
C20	1.5		23867	NPO-SI 1.5	TCZ-1R5	C10V15C	TCO-1.5	ZT-5515	5TCCB-V15	
C21	680		23886	BPD-00068	DD-681	BYA10D68	ED-680	UC-5368	5GA-T68	
C22	1000		23965	BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1	
C23	1.0		23865							N3300
C24	1000		23965	BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1	
C25	680		23886							N2200 10%
C26	1000		23888	BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1	
C27	1000		23965	BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1	
C28	10		23874	NPO-SI 10	TCZ-10	L10Q1	ED-10	ZT-541	5TCC-Q1	10%
C29	22		23878	NPO-SI 22	TCZ-22	L10Q22	ED-22		5TCC-Q22	10%
C30	3300		23875							10%
C31	680		23946	BPD-00068	DD-681	BYA10D68	ED-680	UC-5368	5GA-T68	
C32	.1	200	23307					GEM-201		10%
C33	22		23877	BPD-000022	DD-220	L10Q22	GP-22	UC-5422	5GCC-Q22	
C34	2200		23890							10%
C35	.22	200	23309					GEM-2022		10%
C36	330		23882		D6-331	L10T33	ED-330			10%
C37	10000		23939	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C38	.01	200	23101	BPD-01	DD-103	CUB2S1	GP-10000	DC511	4TM-S1	
C39	10000		23939	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C40	10000		23939	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C41	1.5		23866	NPO-SI 1.5	TCZ-1R5	C10V15C	TCO-1.5	ZT-5515	5TCCB-V15	10%
C42	10		23874	NPO-SI 10	TCZ-10	L10Q1	ED-10	ZT-541	5TCC-Q1	10%
C43	4.7		23871	NPO-SI 4.7	TCZ-4R7	C10V47C	TCO-4.7	ZT-5547	5TCCB-V47	10%
C44	10000		23939	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C45	3300		23875							10%
C46	10000		23939	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C47	18		23804		TCZ-18	L10Q18	ED-18			10%
C48	10000		23939	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C49	3300		23875							10%
C50	1200		23889							10%
C51	1000		23887							10%
C52	.0082	400	23061							10%
C53	.0056	200	23069							10%
C54	10000		23939	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C55	.01	200	23301							10%
C56	.0047	600	23337							10%
C57	270		23276	1469-00027	D6-271	5R5T27			MS-327	10%
C58	10000		23939	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C59	.0027	600	23062							10%

PARTS LIST AND DESCRIPTIONS (Continued)

CAPACITORS (cont)

ITEM No	RATING CAP	RATING VOLT	REPLACEMENT DATA Packard-Bell PART No	AEROVOX PART No	CENTRALAB PART No	CORNELL-DUBILIER PART No	ERIE PART No	MALLORY PART No	SPRAGUE PART No	NOTES
C80	.0033	600	23163							10%
C81	.00005		23159	BPD-01	DD-103	BYA881	ED-01	DC511	5HK-51	
C82	.00005		23159	BPD-01	DD-103	BYA881	ED-01	DC511	5HK-51	
C83	470		23184	BPD-00047	DD-471	BYA10747	ED-470	UC-4547	5GA-747	
C84	.047	200	23305							10%
C85	.0022	600	23336							10%
C86	47	200	23071	P288N-47		CUB2P47		GEM-2047	2TM-P47	
C87	47	200	2311	P288N-47		CUB2P47		GEM-2047	2TM-P47	
C88	.00005		23159	BPD-01	DD-103	BYA881	ED-01	DC511	5HK-51	
C89	56		23545	BPD-01 SS	TCZ-56	L20S56	ED-56			10%
C90	330		23582		D6-331	L10T33	ED-330			10%
C91	1	400	23126	P288N-1	DF-104	CUB4P1		GEM-401	4TM-P1	
C92	330		23321	1469-00033	D6-331	SR5T33	ED-330		M3-333	10%
C93	.033	600	23323							10%
C94	.1000		23565	BPD-001	DD-102	BYA871	ED-1000	DC521	5HK-D1	
C95	.01	600	23330							10%
C96	.0039	600	23064							10%
C97	.056	600	23068							10%
C98	.033	600	23342							10%
C99	.0027	1000	23067							10%
C100	.15	600	23066							10%
C101	33	300	23310					GEM-2033		10%
C102	.0015	400	23315							10%
C103	220		23582		BPD-00022	DD-221	L10T22	ED-220	UC-5322	5GA-T22
C104	8		23563							
C105	82	1000	23278							10%
C106	82		23497		TCZ-82	C10Q83C	TCO-82			5%
C107	.047	400	23184	BPD-06	DF-503	CUB4S47		GEM-4147	4TM-S47	
C108	.47	250	23311	P288N-47		CUB2P47		GEM-2047	2TM-P47	
C109	.01	600	23101	BPD-01	DD-103	CUB01	GP-10000	GEM-401	6TM-01	
C110	.01	600	23278							5%
C111	.01	600	23068							5%
C112	1000		23279		1464-001				M3-21	5%
C113	22	200	23109		P288N-22			GEM-2022	2TM-P22	
C114	.01	600	23139	BPD-01	DD-103	CUB01	GP-10000	GEM-401	6TM-01	
C115	.1	600	23346							10%
C116	.22	600	23347					GEM-6223		10%
C117	.47	200	23311					GEM-2047		10%
C118	.47	200	23311					GEM-2047		10%
C119	.15	600	23348					GEM-6153		10%
C120	.1	600	23343							10%
C121	.047	600	23343							10%
C122	56	5000	23580			DD60-560				
C123	.0033	600	23336							10%
C124	360	3000	23582							
C125	360	3000	23583							
C126	82									
C127	47	200	23072					GEM-2047		10%
C128	39	200	23070							10%
C129	39	200	23070							10%
C130	47	200	23311					GEM-2047		10%
C131	10000		23939	BPD-01	DD-103	BYA851	ED-01	DC511	5HK-51	
C132	.047	400	23184							10%
C133	.047	400	23324							10%
C134	.82		23591		TCZ-82	L10Q82	TCO-82			10%
C135	27		23579		TCZ-27	L10Q27	TCO-27			10%
C136	680		23585				ED-680			10%
C137	.1	200	23107					GEM-201		
C138	10000		23939	BPD-01	DD-103	BYA881	ED-01	DC511	5HK-51	
C139	50-									
C140	180		23431							
C141	10000		23935	BPD-01	DD-103	BYA851	ED-01	DC511	5HK-51	
C142	10000		23939	BPD-01	DD-103	BYA851	ED-01	DC511	5HK-51	
C143	1000		23587		ED-1000		ED-1000			10%
C144	10		23674		NPO-S1 10	TCZ-10	L10Q1	ED-10	ZT-541	5TCC-Q1	10%
C145	.047	400	23324							10%
C146	.047	400	23324							10%
C147	10000		23939	BPD-01	DD-103	BYA851	ED-01	DC511	5HK-51	
C148	10000		23939	BPD-01	DD-103	BYA851	ED-01	DC511	5HK-51	
C149	4	200	23107					GEM-301		10%
C150	100		23525		NPO-S1 100	D6-101	L10T1	ED-100	ZT-531	5TCC-T1	10%
C151	470		23584			D6-471	L10T47	ED-470			10%
C152	1000		23588		BPD-001	DD-102	BYA8D1	ED-1000	DC531	5HK-D1	
C153	10000		23939		BPD-01	DD-103	BYA851	ED-01	DC511	5HK-51	
C154	2.9		23969							
C155	6.0		23873							
C156	10000		23939		BPD-01	DD-103	BYA851	ED-01	DC511	5HK-51	
C157	10000		23939		BPD-01	DD-103	BYA851	ED-01	DC511	5HK-51	
C158	330		23582			D6-331	L10T33	ED-330			10%
C159	1000		23587					ED-1000			10%
C160	10		23674		NPO-S1 10	TCZ-10	L10Q1	ED-10	ZT-541	5TCC-Q1	10%
C161	.047	400	23324							10%
C162	.047	400	23324							10%
C163	.047	600	23743		BPD-05	DF-503	CUB6S47		GEM-6147	6TM-S47	
C164	1000		23565		BPD-001	DD-102	BYA81E	ED-1000	DC521	5HK-D1	

CONTROLS

ITEM No	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA Packard-Bell PART No	CENTRALAB PART No	CLAROSTAT PART No	IRC PART No	MALLORY PART No	INSTALLATION NOTES
R1A	250K	½	25941	F1-34		* QJ-1064	UF254A	Brightness
B	1meg	½		R2-57			URIET254	Volume - Tap @ 280K
C	Switch			KB-1			US-26	
D	Cover			KB-5		Not Req.	Not Req.	
R2A	2.5meg	½	25283	F1-78		QJ-1050	UE3001	Vert. Hold
B	5meg	½		R2-83		Not Req.	Not Req.	Height
R3A	500Ω	½	25937	F1-41		QJ-1050	UE77	Vert Linearity
B	500K	½		R2-40		Not Req.	Not Req.	AGC
R4	500Ω	½	25940	F1-1		QJ-1051		Color
R5	500Ω	½	25938	F1-1		QJ-1051		Hue
R6A	2.5meg	½	25939	F1-76		** C	UE3052	Tone
B	2.5meg	½		R2-76		** C	Not Req.	Noise
R7A	2.5meg	½	25931	F1-76		* C	UE3051	Vert Linearity
B	1meg	½		R2-51			Not Req.	Red Screen
R8A	1meg	½	25930	F1-51			UE161	Blue screen
B	1meg	½		R2-51			Not Req.	Green screen
R9A	100Ω	½	25928				UE78	Blue DC - Tap @ 75Ω
B	2meg	½					Not Req.	Red Background
R10A	2meg	½	25932	F1-67		QJ-1049	UE1872	Blue Background
B	2meg	½		R2-67		Not Req.	Not Req.	Green Background
R11A	100Ω	½	25929				UE78	Blue Vert Amp.
B	100Ω	½					Not Req.	Blue Vert Tilt.

CONTROLS (cont)

ITEM No	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA Packard-Bell PART No	CENTRALAB PART No	CLAROSTAT PART No	IRC PART No	MALLORY PART No	INSTALLATION NOTES
R13A	100Ω	½	25939				UE78	Green Vert. Amp.
B	100Ω	½					Not Req.	Green Vert. Tilt
R13A	100Ω	½	25939				UE78	Red Vert. Amp.
B	100Ω	½					Not Req.	Red Vert. Amp.
R14A	100Ω	½	25937				UE70	Red DC - Tap @ 75Ω
B	100Ω	½					Not Req.	Green DC - Tap @ 75Ω
R15A	150Ω	½	25943	AB-2				Matrix Balance
B	Shaft			AK-1				
R16A	40Ω	2	25934	WN-400	A43-40	WP840	M40PK	Vert. Centering
B	Shaft			Not Req.	FK3-1/4	Not Req.	Not Req.	
R17A	2.5meg	½	25942	F1-76		UE3053		Killer threshold
B	2.5meg	½		R2-76		Not Req.		AGC threshold
R18	200K	½	25936					Focus
R19	100Ω	½	25935				U1	Horiz Centering
R20	300Ω	½	25944					Sound Reject

* Concentrikit Equivalent K-4 Kit, Base Elements And Shafts: Bil-130, P1-229 (Panel); Bil3-1375, Ri-316 (Rear); T6-1 (Switch)

† Concentrikit Equivalent K-6 Kit, Base Elements And Shafts: Bil-239, P17-118 (Panel); Bil-141, R15-005 (Rear)

• • Concentrikit Equivalent K-6 Kit, Base Elements And Shafts: Bil-239, P17-118 (Panel); Bil-239, R15-005 (Rear)

* Concentrikit Equivalent K-8 Kit,Base Elements And Shafts: Bil-239, P19-013 (Panel); Bil-137, R15-008 (Rear); R5 (Retainer)

† Concentrikit Equivalent K-8 Kit, Base Elements And Shafts: Bil-239, P19-013 (Panel); Bil-239, R15-005 (Rear); R5 (Retainer)

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	Packard-Bell PART No.	NOTES
R31	680K 5%		73089-1	
R32	130K 5%		73050-1	
R33	150K 5%		73051-1	
R34	82K 5%		73043-1	
R35	18K		73040	
R36	100K	2	73449	
R37	1000Ω		73038	
R38	64Ω 5%		73011-1	
R39	100K 5%		73049-1	
R40	100Ω		73025	
R41	68Ω 5%		73011-1	
R42	100Ω		73025	
R43	10K 5%		73037-1	
R44	82K 5%		73048-1	
R45	100Ω		73025	
R46	68Ω 5%		73011-1	
R47	330Ω 5%	7	73715	
R48	68K 5%		73047-1	
R49	15K	2	73439	
R50	470Ω		73052	
R51	180Ω 5%		73016-1	
R52	10K		73037	
R53	3900Ω 5%		73032-1	
R54	220Ω		73017	
R55	56K	1	73245	
R56	15K	2	73439	
R57	33Ω 5%		73007-1	
R58	18000Ω 5%	1	73237-1	
R59	4700Ω 5%		73033-1	
R60	18000Ω 5%		73038-1	
R61	180K		73053	
R62	680K		73089	
R63	18K		73040	
R64	56K		73046	
R65	22K	2	73441	
R66	18meg		73076	
R67	3300Ω 5%		73017-1	
R68	100Ω 5%		73023-1	
R69	33K		73043	
R70	47K		73045	
R71	27K		73042	
R72	47K		73045	
R73	4700Ω	1	73233	
R74	100K		73049	
R75	150K		73051	
R76	1800Ω		73018	
R77	120Ω		73014	
R78	13K	10	73708	
R79	130K		73050	
R80	3300Ω		73033	
R81	15K		73039	
R82	39K		73044	
R83	27K 5%		73042-1	
R84	10meg		72173	
R85	330K		73185	
R86	39K		73044	
R87	820K 5%		73080-1	
R88	1.5meg 5%		73083-1	
R89	470Ω	2	73421	
R90	470K		73157	
R91	18K		73040	
R92	270K		73054	
R93	330Ω		73019	
R94	1meg		73081	
R95	1.2meg		73082	
R96	1meg		73081	
R97	560K		73058	
R98	33K		73043	
R99	270Ω 5%		73039-1	
R90	6800Ω	1	73235	
R91	120K		73050	
R92	1meg		73081	
R93	39K		73044	
R94	6.8meg		73075	
R95	2.2meg		73065	
R96	15K 5%		73038-1	
R97	18K 5%		73040-1	

ITEM No.	RATING OHMS	RATING WATT	Packard-Bell PART No.	NOTES
R98	470K		73167	
R99	22K 5%	1	73241-1	
R100	180K		73050	
R101	820K 5%		73060-1	
R102	3.3meg	1	73269	
R103	100K		73049	
R104	2.7meg 5%		73066-1	
R105	3700Ω	7	73713	
R106	13000 5%			
R107	1200Ω 5%			
R108	330K		73055	
R109	820K		73060	
R110	3900Ω		73032	
R111	82K	1	73248	
R112	150K 5%		73051-1	
R113	100K 5%	1	73249-1	
R114	1meg		73081	
R115	470K		73057	
R116	68K		73047	
R117	10K		73051	
R118	82K	1	73248	
R119	39K	1	73244	
R120	120Ω		73014	
R121	56Ω		73010	
R122	10K	10	73707	
R123	47000Ω	1	73233	
R124	1meg	2	7371	
R125	1meg	2	7371	
R126	10meg	2	73712	
R127	10meg	2	7373	
R128	10meg	2	7372	
R129	1.8meg 5%	1	73264-1	
R130	1.8meg 5%	1	73264-1	
R131	100meg	1	7370	
R132	10000 5%	1	73228-1	
R133	33000		73031	
R134	2100 5%	2	73485-1	
R135	820 5%	2	73486-1	
R136	3700 5%	7	73714	
R137	470K		73057	
R138	22K		73041	
R139	22K	2	73441	
R140	56000 5%		73034-1	
R141	1meg		73081	
R142	10K 5%	10	73716	
R143	390K		73056	
R144	1meg		73081	
R145	41000 5%		73078-1	
R146	68000		73035	
R147	2900		73020	
R148	1meg		73081	
R149	10meg		73073	
R150	10K 5%	10	73716	
R151	82K	2	73448	
R152	1500Ω 5%		73237-1	
R153	5800 5%		73032-1	
R154	7500Ω		7303	
R155	22K	2	73441	
R156	2700 5%		73018-1	
R157	3900 5%		73020-1	
R158	56Ω		73010	
R159	56000 5%		73034-1	
R160	4700 5%		73032-1	
R161	1meg		73081	
R162	10K 5%	10	7376	
R163	390K		73056	
R164	1meg		73081	
R165	10meg		73073	
R166	1meg		73081	
R167	2.2meg		73085	
R168	470K		73057	
R169	470K		73057	
R170	680K		73089	
R171	3300Ω		73031	
R172	56K 5%		73046-1	
R173	1000Ω		73026	
R174	3300Ω		73031	

RESISTORS (cont)

ITEM No.	RATING OHMS	RATING WATT	Packard-Bell PART No.	NOTES
R175	68K		73047	
R176	10K	2	73437	
R177	56K	1	73249	
R178	6800Ω 5%		73035-1	
R179	3300Ω 5%		73031-1	
R180	5600Ω 5%		73034-1	
R181	100Ω		73013	
R182	470Ω 5%		73021-1	
R183	1meg		73081	
R184	10K 5%	10	73716	
R185	390K		73056	
R186	1meg		73081	
R187	120K 5%	2	73450-1	
R188	27K 5%		73042-1	
R189	560K		73058	
R190	2900 5%	2	73420-1	
R181	8000Ω	7	73709	
R182	100K	2	73449	
R183	100K	2	73449	
R184	100K	2	73449	
R185	10K		73037	
R186	82Ω		73012	
R187	22Ω	2	73405	
R188	22Ω	2	73405	
R189	27Ω	2	73406	
R200	82Ω	2	73282	
R201	2700Ω	7	73713	
R202	1500Ω	10	73029	
R203	1600Ω	10	73717	
R204	10K	1	73237	
R205	56K		73046	
R206	56K		73046	

TRANSFORMER (POWER)

ITEM No	RATING PRI.	RATING SEC. 1	RATING SEC. 2	RATING SEC. 3	Packard-Bell PART No	Halldorson PART No	Merit PART No	Stancor PART No	Thordarson PART No	Triad PART No
T1	117V @ 3.8A	700VCT @ .530A	5V @ 6A	6.3V @ .84A SEC. 4	89052					
				6.3V @ 3.2A						

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No	USE	Packard-Bell PART No	Halldorson PART No	Merit PART No	Ram PART No	Stancor PART No	Thordarson PART No	Triad PART No	NOTES
T2	Vert. Output	89474							
T3	Yoke-Horiz. (12MH) Vert. (112MH)	29680 ①							
T4	Horiz. Output	89473							
T5	Horiz. Linearity Coil (.4-1.2MH)	29679							
T6	Width Choke (.38MH)	29678							
T7	Green Horiz. Conv. Amp. Coil (.18-1.5MH)	29676	RF803	MWC-10 ②	20IR4	WC-7	WC-16		
T8	Blue Horiz. Conv. Amp. Coil (.18-1.5MH)	29676	RF803	MWC-10 ②	20IR4	WC-7	WC-16		
T9	Red Horiz. Conv. Amp. Coil (.18-1.5MH)	29676	RF803	MWC-10 ②	20IR4	WC-7	WC-16		
T10	Green Horiz. Conv. Tilt Coil (.1-.5MH)	29677	RF803	MWC-8		WC-4	WC-15	WLC-4	
T11	Blue Horiz. Conv. Tilt Coil (.1-.5MH)	29677	RF803	MWC-8		WC-4	WC-15	WLC-4	
T12	Red Horiz. Conv. Tilt Coil (.1-.5MH)	29677	RF803	MWC-8		WC-4	WC-15	WLC-4	
T13	Conv. Yoke Assembly								

① Includes resistors R106, R107, capacitor C106 and yoke plug.
② Use red and blue terminals.

TRANSFORMER (AUDIO OUTPUT)

ITEM No	IMPEDANCE PRI.	IMPEDANCE SEC.	Packard-Bell PART No.	Halldorson PART No	Merit PART No	Stancor PART No	Thordarson PART No	Triad PART No	NOTES
T14	7800Ω	3-4Ω	89466	ZU12	A-3020	A-3878 ①	26S48	S-9X ①	① Drill new mounting hole

SPEAKER

ITEM No.	TYPE SIZE	TYPE FIELD	TYPE V. C. IMP.	REPLACEMENT DATA Packard-Bell PART No.	REPLACEMENT DATA QUAM PART No	NOTES
SP1	6" x 9"	PM	8-8Ω	83113 ①	69AI2S ①	① Parallel and phase
SP2	6" x 9"	PM	8-8Ω	83113 ① ②	69AI2S ①	② Not used in Model 21CTI

COILS (RF-IF)

ITEM No	USE	Packard-Bell PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	NOTES
L1	RF Choke	29681	19-1000	RC-58	4603	1 Microhenry
L2	41.25MC Trap	29673	17-4854			
L3	47.25MC Trap	29674	30-1049			
L4	Fil. Video IF	29685				
L5	FIL. Choke					
L6	2nd. Video IF	29682				
L7	FIL. Choke					
L8	3rd Video IF	29683				
L9	RF Choke	29648	19-1005	BC-588	4612	12 Microhenries
L10	41.25 Video IF	29654				Includes 4.5MC trap
L11	RF Choke	29646	19-1005	BC-588	4613	12 Microhenries
L12	Series Peaking Coil	29680		TV-193	6180	83 Microhenries
L13	Shunt Peaking Coil	29651	19-3180	TV-184	6180	180 Microhenries
L14	RF Choke	29646	19-1005	BC-588	4612	12 Microhenries
L15	Series Peaking Coil	29656	19-3180 *	TV-184 *	6180 *	180 Microhenries, wound on 1800Ω resistor
L16	Shunt Peaking Coil	29658	19-3180	TV-184	6180	300 Microhenries
L17	Series Peaking Coil	29657	19-3180 ▲	TV-184 ▲	6180 ▲	180 Microhenries, wound on 820Ω resistor
L18	Series Peaking Coil	29660	19-3300	TV-199	6155	300 Microhenries
L19	Shunt Peaking Coil	29659	19-3125	TV-195	6153	120 Microhenries
L20	RF Choke	29646	19-1005	BC-588	4612	12 Microhenries
L21	1st. Sound IF	29647				
L22	2nd. Sound IF	29648				
L23	Ratio Det.	29649				
L24	RF Choke	29646	19-1005	BC-588	4612	12 Microhenries
L25	Chroma Take-off Trans.	29662				Includes 4.5MC Trap
L26	Low Freq Peaker Coil	29663				
L27	1st. Bandpass Trans.	29664				
L28	2nd. Bandpass Trans.	29665				
L29	Burst Amp Trans.	29666				Includes caps.
L30	Chroma Ref.Osc. Coil	29668				
L31	Demod. Driver Trans.	29667				Includes caps.
L33	Series Peaking Coil	29669	19-3880	TV-205	6146	630 Microhenries

PARTS LIST AND DESCRIPTIONS (Continued)

COILS (cont)

ITEM No.	USE	REPLACEMENT DATA				NOTES
		Packard-Bell PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L33	Shunt Peaking Coil	29670	19-3180	TV-184	6180	180 Microhenries
L34	Shunt Peaking Coil	29670	19-3180	TV-184	6180	180 Microhenries
L35	Series Peaking Coil	29669	19-3660	TV-205	6146	620 Microhenries
L36	Shunt Peaking Coil	29671		BC-513	4652	1.1 Millihenries
L37	Shunt Peaking Coil	29671		BC-513	4652	1.1 Millihenries
L38	Shunt Peaking Coil	29671		BC-513	4652	1.1 Millihenries
L39	RF Choke	29646	19-1005	BC-566	4612	12 Microhenries
L40	RF Choke	29646	19-1005	BC-566	4612	12 Microhenries

* Parallel with 1800Ω resistor.
▲ Parallel with 8200Ω resistor.

TRANSFORMER (HORIZ. OSC.)

ITEM No.	DC RES.		REPLACEMENT DATA						NOTES
	PRI.	SEC.	Packard-Bell PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	Thordarson PART No.	
L41	81Ω *		29675		TV-165			HS-7	11-80 Millihenries Horiz. freq. * Tapped @ 58Ω
L42	45Ω		29661						Horiz. Waveform

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA					
	TOTAL DIRECT CURRENT	D. C. RESISTANCE	INDUCTANCE (0 CURRENT 1000 ∿)	Packard-Bell PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
L43	.520A	19Ω	.6 Hy.	27011					C-40X

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			Packard-Bell PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M1	3AG	2A 250V P/T	45037		318002. (3AG 2A 250V P/T)		GJV 2	
M2	C	3/10A 250V	45035	45020	332.300 (C 3/10 250V)	346001	C 3/10	HC 0 to 3/10
M3	C	3/4A 250V	45036	45022	332.750 (C 3/4A 250V)	346002	C 3/4	HC 1/2 to 3/4
M4	4" Length of #22 Wire		92722					

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA			NOTES
		Packard-Bell PART No.	CBS PART No.	SYLVANIA PART No.	
M5	K60	72019	1N60	1N60	Video Detector (Pigtail)
M6	K60	72019	1N60	1N60	Audio Detector (Pigtail)
M7	1N367 *	72024	1N64	1N60	Color Killer Bias (Pigtail)

* A D734 may be used in some versions.

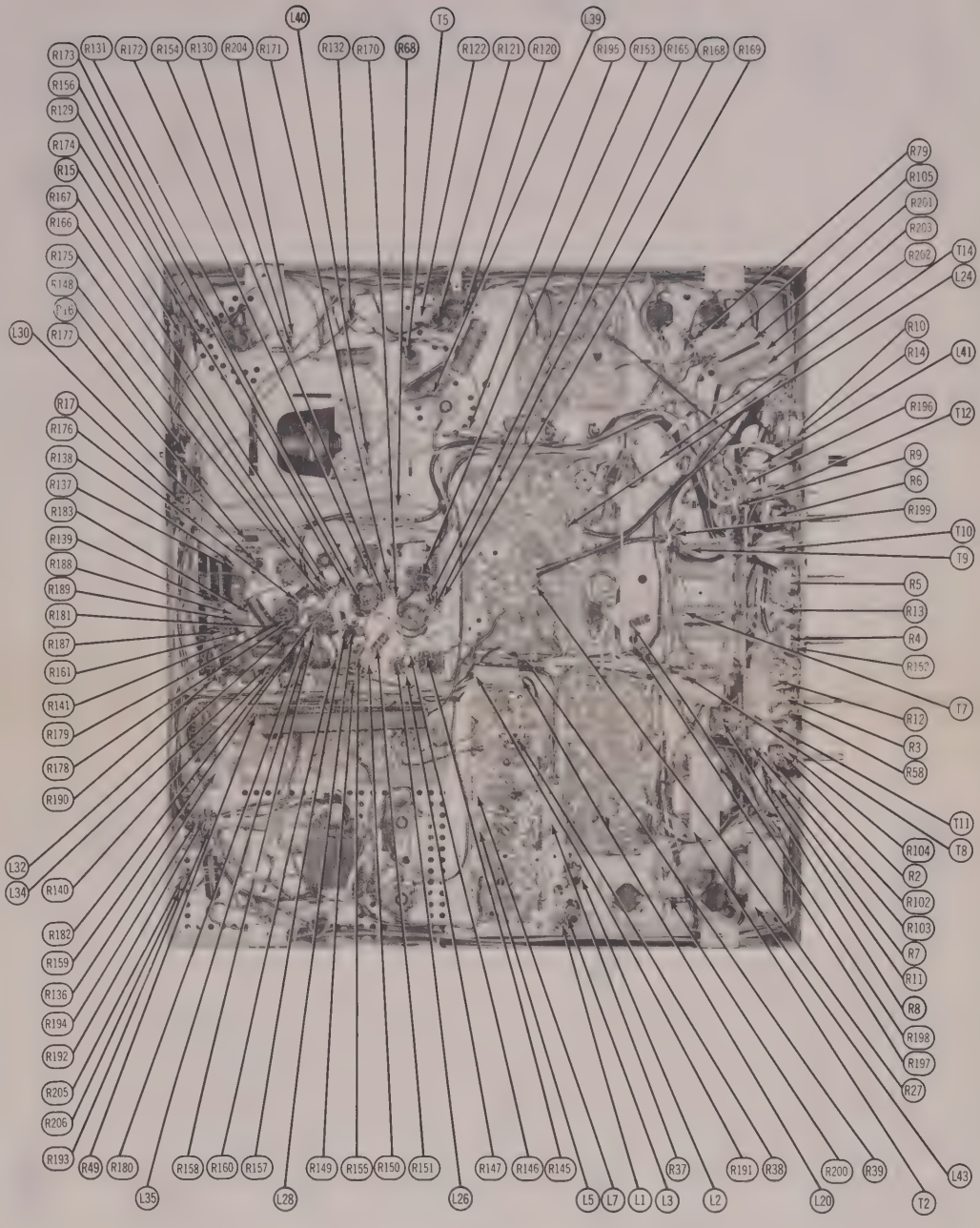
MISCELLANEOUS

ITEM No.	PART NAME	Packard-Bell PART No.	NOTES
M8	Crystal	72020	3.579545MC Osc.
M9	Dial Lamp	54002	#47
M10	Tuner	10577	VHF
M11	Delay Line	29672	
M12	Switch	86808	Width, (Rotary, wafer type)
M13	Magnet		Purity
M14	Magnet		Blue Lateral
M15	Magnet		Equalizing, 6 used
	Printed Board	10568	Sound, AGC and 1st. Sync
	Printed Board	10569	Video IF
	Printed Board	10570	Video & Noise Inverter
	Printed Board	10571	Vert. & Sync
	Printed Board	10572	Horiz. Osc.

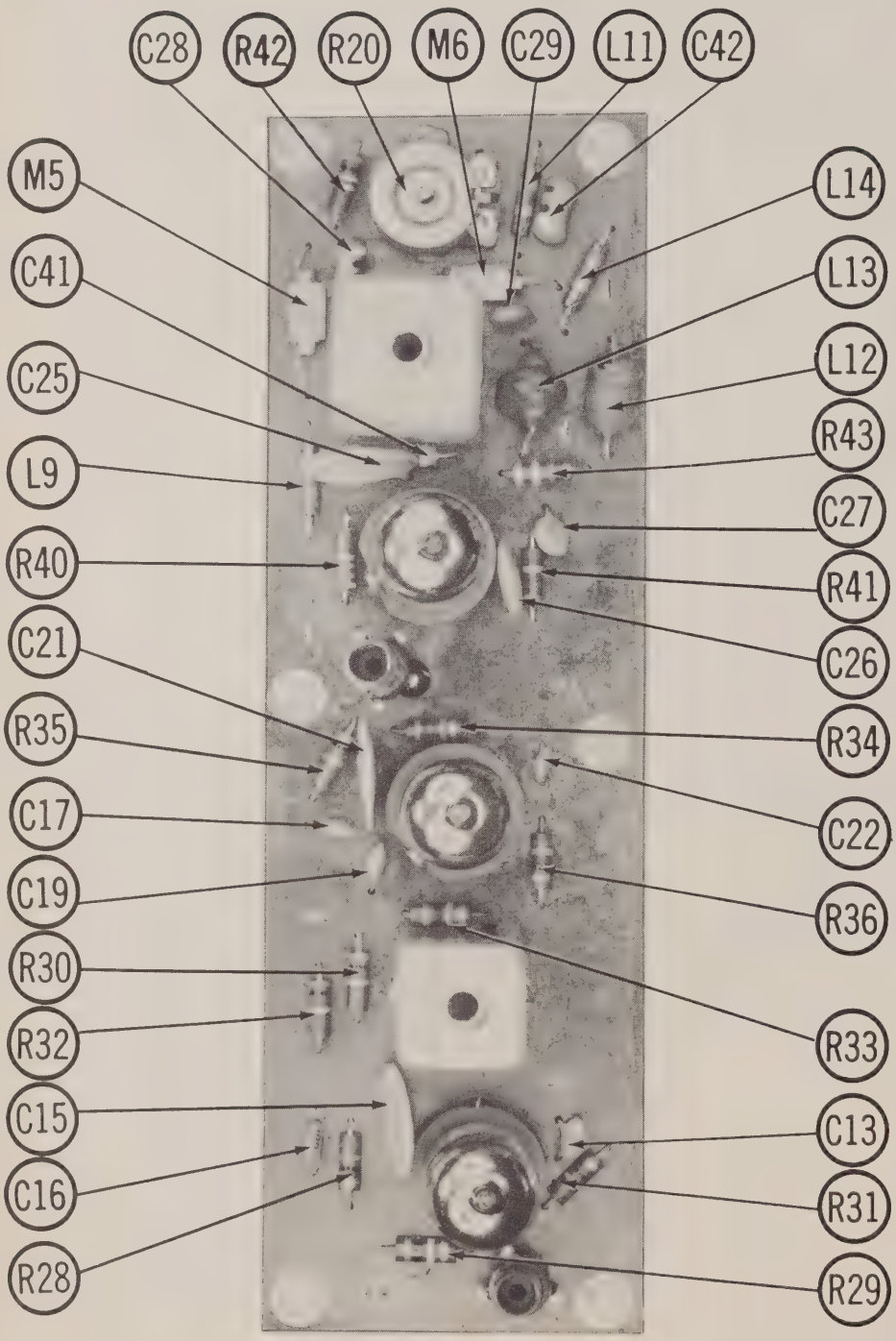
CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	52192	Horiz. Hold
Knob	52193	Width, Focus, Horiz. Centering



CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION



VIDEO IF PRINTED BOARD

DISASSEMBLY INSTRUCTIONS

CHASSIS REMOVAL

1. Remove 8 push-on type knobs.

2. Remove 2 metal screws and plastic guard under the channel selector knobs. (Table Models Only).

3. Remove 1 metal screw at the AC interlock and pry off the rear cover.

4. Remove the speaker leads, picture tube socket and HV lead.

5. Loosen the yoke clamp.

6. On console models remove 1 metal screw accessible through a hole in the side of the cabinet and remove the volume control assembly.

7. Remove 2 chassis bolts from the bottom.

8. Remove 2 metal screws (hex nuts on console models) holding the top of the chassis.

9. Remove the chassis and yoke.

CAUTION NOTE

ONE SIDE OF AC LINE CONNECTED TO CHASSIS
Care should be exercised when connecting test equipment or physically contacting the chassis.

MODEL 21-T-8245U (CH. KCS107B)

RCA VICTOR MODELS 21-PD-8115, U, 21-T-8245, U, 21-T-8246, U, 21-T-8247 U, 21-T-8475, U, 21-T-8477, U, 21-T-8478, U (Ch. KCS-107A, B, C, D)

TRADE NAME	RCA Victor	MODELS	CHASSIS
		21-PD-8115, 21-T-8245, 21-T-8246, 21-T-8247	KCS107A
		21-PD-8115U, 21-T-8245U, 21-T-8246U, 21-T-8247U	KCS107B
		21-T-8475, 21-T-8477, 21-T-8478	KCS107C
		21-T-8475U, 21-T-8477U, 21-T-8478U	KCS107D
MANUFACTURER	Radio Corporation of America, RCA Victor Tele. Div., Camden 8, N.J.		
TYPE SET	Television Receiver		
TUBES	Seventeen		
POWER SUPPLY	110-120 Volts AC, 60 Cycle	RATING 150 Watts, 1.4 Amp. @ 117 Volts AC	
TUNING RANGE	Channels 2 thru 13 VHF, 14 thru 83 UHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier)		

SERVICING IN THE FIELD

TUNER OSCILLATOR ADJUSTMENTS

Touch-up adjustment of the VHF oscillator is possible by removing the channel selector and fine tuning knobs. Set the fine tuning at the center of its range. The adjustments (located in a circle around the shaft) should be made in sequence from the highest to the lowest channel in the area. Channel 12 adjustment is located at 12 o'clock, proceed in a counter clockwise dirction adjusting for best picture picture and sound.

PICTURE TUBE SAFETY GLASS CLEANING

Remove 2 metal screws from under front edge of cabinet.
Pull front out at bottom and lift up to remove.
Remove 6 spring clips and safety glass.
NOTE: In some models the 6 spring clips are replaced by 4 sliding channels. Slide those on top to the right and those on the bottom to the left to release.

HORIZONTAL OSCILLATOR FIELD ADJUSTMENTS

Adjust horizontal hold control until picture synchronizes horizontally.

FUSES

One fuse is used for horizontal sweep circuit protection. (For location, see tube placement chart).

FUSE DEVICE

A 5.6Ω fusible resistor (R123) is used for LV power supply protection. (For location, see tube placement chart).

CENTERING

Centering is accomplished mechanically by means of a centering arm. Adjust the arm from side to side, and up and down until the picture is properly centered.

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

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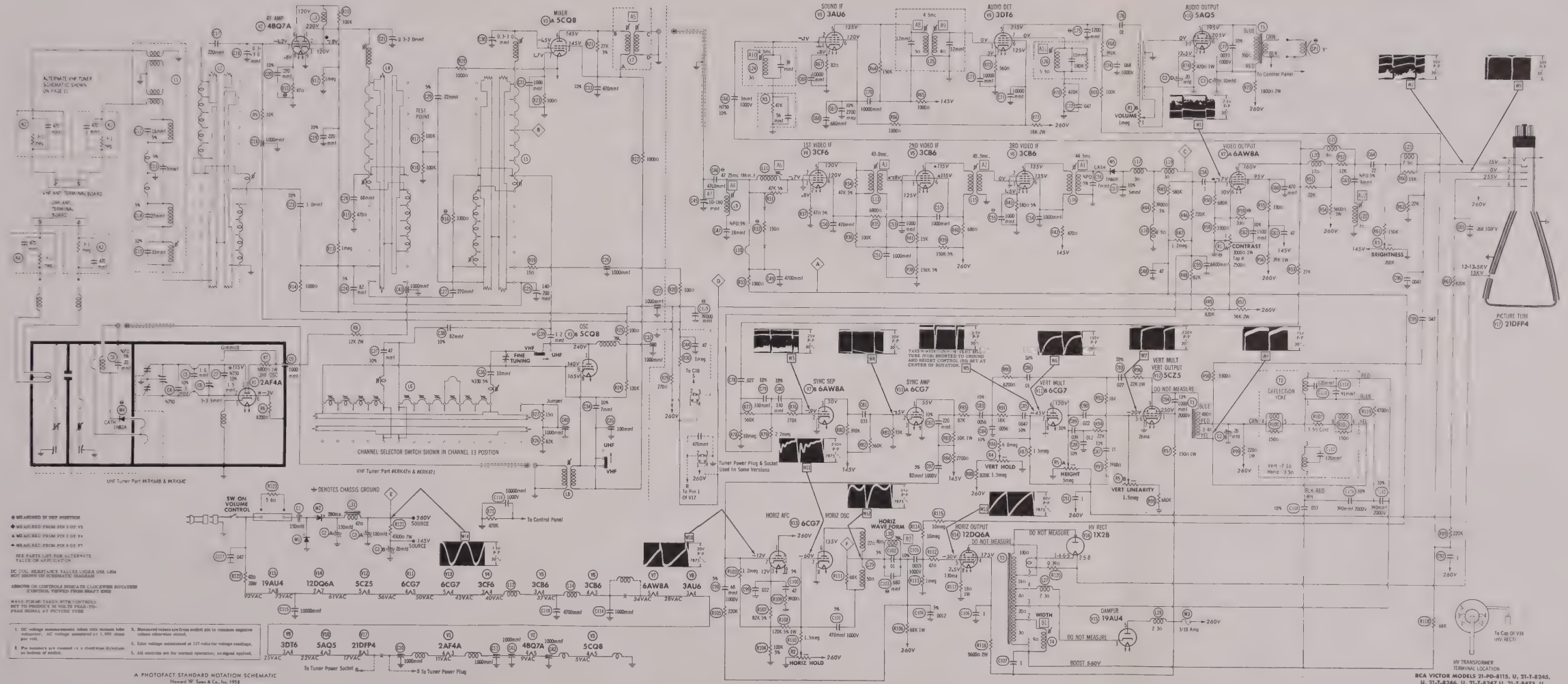

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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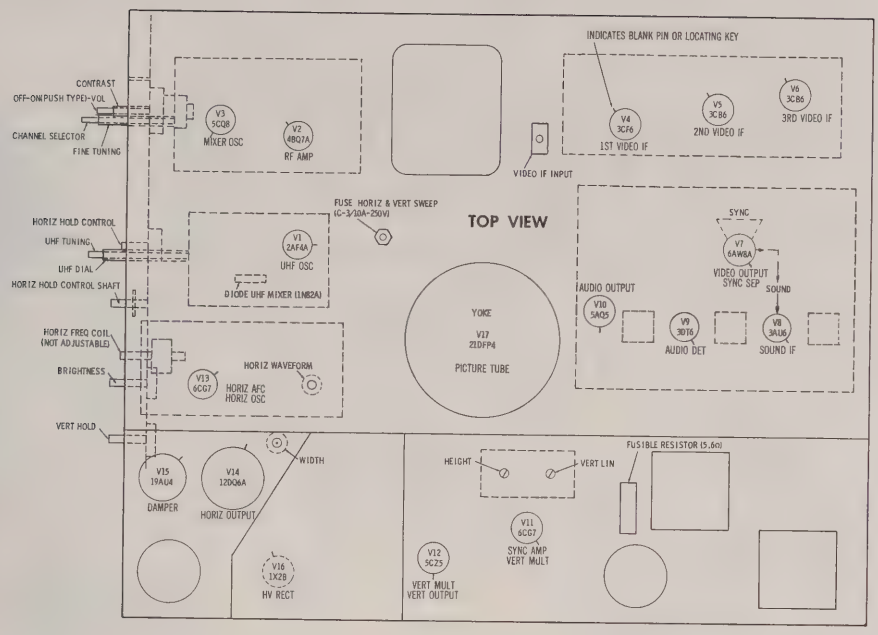
RCA VICTOR MODELS 21-PD-8115, U, 21-T-8245, U, 21-T-8246, U, 21-T-8247 U, 21-T-8475, U, 21-T-8477, U, 21-T-8478, U (Ch. KCS-107A, B, C, D)

TUBE PLACEMENT CHART



TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce the indicated symptoms. Refer to tube placement chart for location and type of tube.

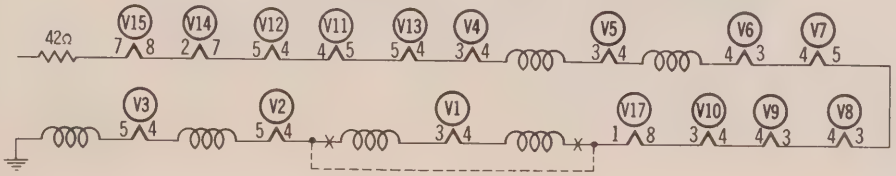
POWER SUPPLY FAILURE
No raster, no sound - **Fusible Resistor (R123), Rectifier (M1, M2)**

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster - **V4, V5, V6, Diode (M5), V7**
No pic, no sound, has snow - **V2, V3, V4, (V1 UHF only)**
No pic, has sound, has raster - **V7, V17**
Has pic, no sound - **V8, V9, V10**

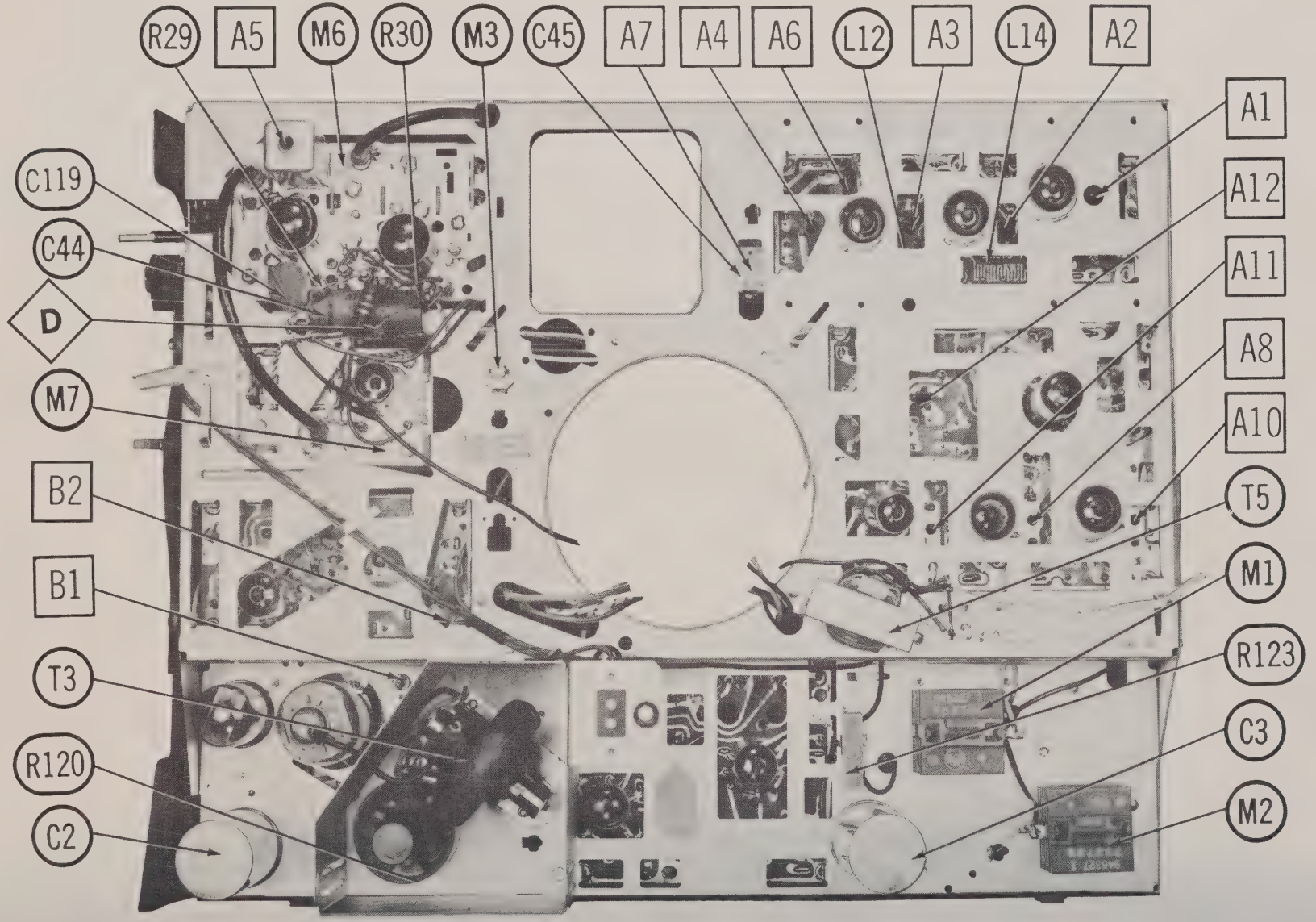
SYNC FAILURE
No vert. sync - **V7, V11**
No horiz. sync - **V7, V11, V13**
No vert. or horiz. sync - **V7, V11**

SWEEP FAILURE
No raster, has sound - **Fuse (M3), V13, V14, V15, V16, V17**
No vertical deflection - **V11, V12**
Poor vert. linearity or foldover - **V11, V12**
Poor horiz. linearity or foldover - **V13, V14, V15**
Narrow picture -**V13, V14, V15, M1, M2**
Vert. off freq. - **V11, V12**
Horiz. off freq. - **V13**

This receiver employs tubes used in a series filament network, an open filament in any tube in the series will cause the set to be inoperative. (See circuit below).



PROPERTY OF
L. F. WINGHAM
[illegible]



CHASSIS TOP VIEW

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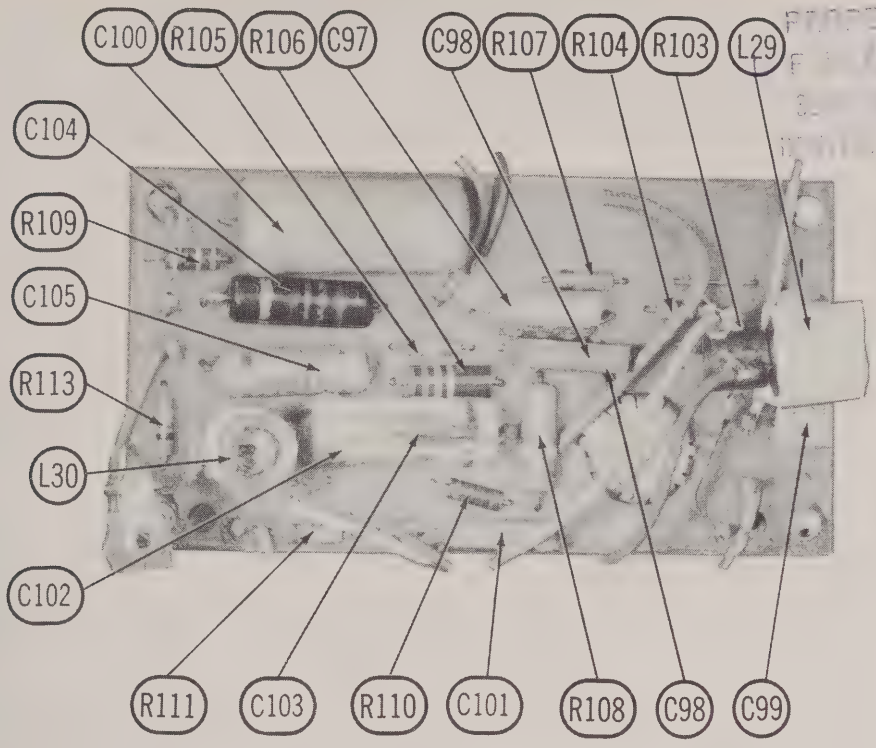
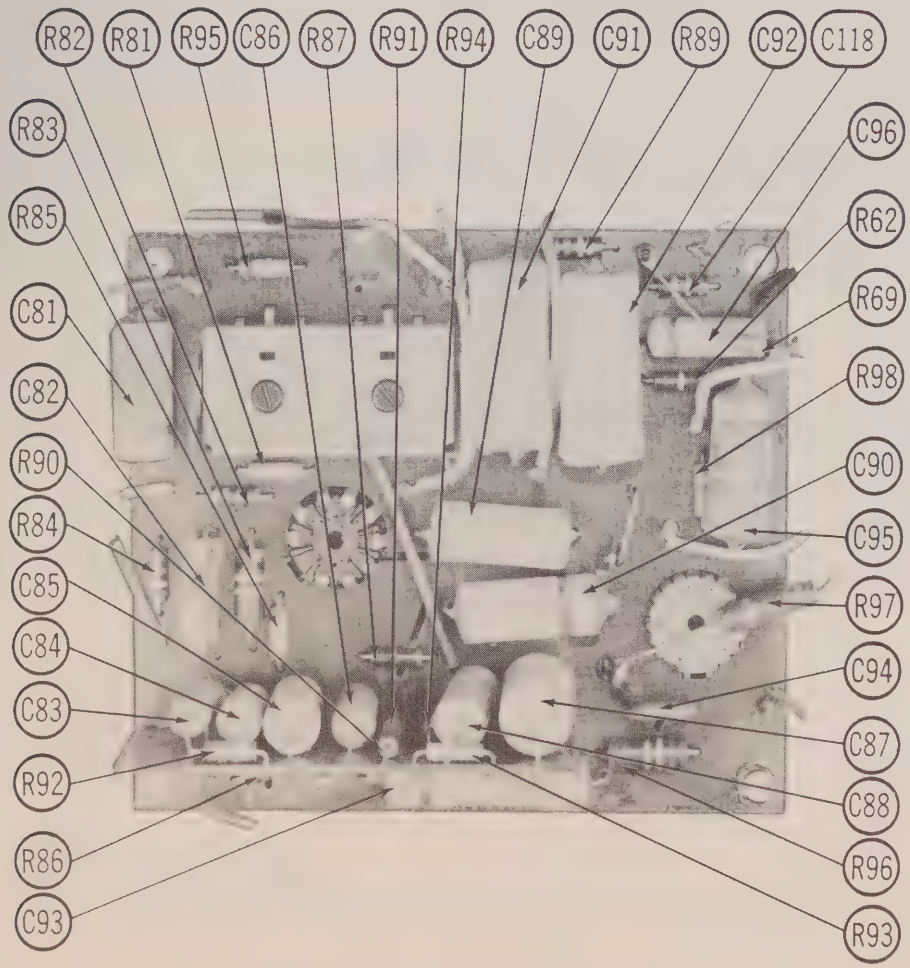


HORIZONTAL PRINTED BOARD



VERTICAL PRINTED BOARD

ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

USE AN ISOLATION TRANSFORMER TO PROTECT THE TEST EQUIPMENT.
The high voltage lead should be securely taped and kept away from the chassis.
Allow a 20 minute warm-up period for the receiver and test equipment.
The high voltage is disabled by connecting a 150Ω, 10 watt resistor in series with the plate lead of the horizontal output tube (V14) and connecting -12.5 volt bias to the grid (pin 5).

VIDEO IF ALIGNMENT

Connect the negative lead of a 4 volt bias supply to point Ⓐ. Positive to chassis.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
1.	1500mmf Ceramic Capacitor	High side to point Ⓑ. Low side to chassis.	44.5MC (Unmod)	Any non-interfering channel	DC probe thru 10K to point Ⓒ. Common to chassis.	A1	Use only enough generator output to provide a usable indication on VTVM. Adjust for maximum deflection.
2.	"	"	45.5MC	"	"	A2	"
3.	"	"	43.0MC	"	"	A3	"
4.	"	"	47.25MC	"	"	A4	Adjust for MINIMUM deflection.

OVERALL VIDEO IF RESPONSE CHECK

Connect bias as under "Video IF Alignment".
Connect the negative lead of a 3 volt bias supply to point Ⓓ. Positive to chassis.
Connect a 180Ω resistor from pin 5 (plate) to pin 6 (screen) of the 1st. video IF amplifier (V4).
If a separate marker generator is used, couple loosely to the sweep generator output lead.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
5.	1500mmf Ceramic Capacitor	High side to point Ⓑ. Low side to chassis.	43.5MC (10MC Swp)	42.5MC 45.75MC	Any non-interfering channel	Vert. Amp. thru diode probe to pin 5 (plate) of 1st. video IF amplifier (V4). Low side to chassis.	A5, A6, A7	Adjust for maximum gain and symmetry of response similar to Fig. 1 with markers as shown. Remove 180Ω resistor and scope connections from V4.
6.	"	"	"	42.5MC 45.0MC 45.75MC	"	Vert. Amp. thru diode probe to pint Ⓒ. Low side to chassis.		Check for response similar to Fig. 2. If necessary, retouch A1, A2, and A3 for desired response.
7.	Fig. 3	High side to point Ⓑ thru pad (Fig. 3). Low side to chassis.	Not used	45.75MC (Unmod)	"	USE VTVM. DC probe to point Ⓒ. Common to chassis.		Adjust generator output for exactly 1.5 volts on VTVM.
8.	Direct	High side to point Ⓑ. Low side to chassis. DO NOT change output level.	"	41.25MC (Unmod)	"	"		Retouch A1 and A3 SLIGHTLY to obtain 1.2 to 1.5 volts on VTVM but still maintaining proper response as in step 6.

SOUND IF ALIGNMENT

Connect the negative lead of a 10 volt bias supply to point Ⓐ. Positive to chassis.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
9.	.001mfd	High side to point Ⓒ. Low side to chassis.	4.5MC (Unmod)	Any non-interfering channel	DC probe thru diode detector circuit (Fig. 4) to pin 7 (screen grid) of 3DT6 (V9). Common to chassis. Connect scope across voice coil of speaker.	A8, A9	Adjust for maximum negative DC voltage on VTVM. Use only enough generator output to provide a usable indication on VTVM. Peak with maximum core separation.
10.	"	"	"	"	"	A10	Use only enough generator output to provide a usable indication on VTVM. Adjust A10 for maximum negative DC voltage on VTVM.
11.	Disconnect the diode detector circuit. Turn off signal generator and tune in the strongest TV signal in the area, adjusting volume control for normal volume. Set A11 so that core is flush with top of form. Observe scope and listen to sound. Adjust A11 clockwise to peak output. Continue clockwise to a second louder peak and adjust for maximum output at this second peak.						

ALTERNATE SOUND IF ALIGNMENT USING FM GENERATOR

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
12.	.001mfd	High side to point Ⓒ. Low side to chassis.	4.5MC (Unmod)	Any non-interfering channel	DC probe thru diode detector circuit (Fig. 4) to pin 7 (screen grid) of 3DT6 (V9). Common to chassis. Connect scope across voice coil of speaker.	A8, A9	Adjust for maximum negative DC voltage on VTVM. Use only enough generator output to provide a usable indication on VTVM. Peak with maximum core separation.
13.	"	"	"	"	"	A10	Use only enough generator output to provide a usable indication on VTVM Adjust A10 for maximum negative DC voltage on VTVM.
14.	"	"	4.5MC (400∿ FM Mod. 15KC Swp)	"	USE SCOPE Across voice coil of speaker	A11	Adjust for maximum 400∿ indication on scope. Use only enough signal to produce .7 volts peak to peak on scope when A11 is peaked.
15.	"	"	"	"	"		Decrease input signal to MINIMUM usable signal and retouch A8, A9 and A10 for symmetrical breakout similar to Fig. 5.

ALIGNMENT INSTRUCTIONS (cont)

4.5MC TRAP ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
16.	.001mfd	High side to point Ⓒ. Low side to chassis.	4.5MC (400∿ AM 30% Mod)	Any non-interfering channel	Vert. Amp. thru diode detector circuit (Fig. 4) to pin 7 (cathode) of picture tube. Low side to chassis.	A12	Adjust for MINIMUM 400∿ indication on scope.

TUNER ALIGNMENT

This portion of the receiver has been properly aligned at the factory and is very stable. Alignment of this portion should not be required in the field.

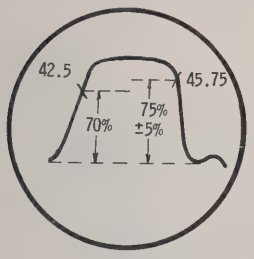


FIG. 1

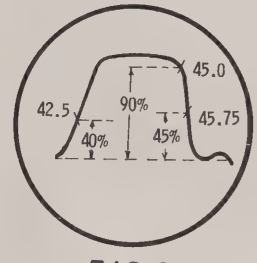


FIG. 2

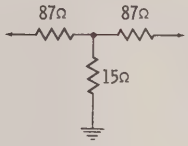


FIG. 3

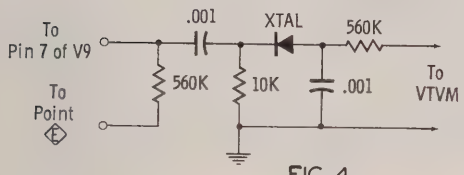
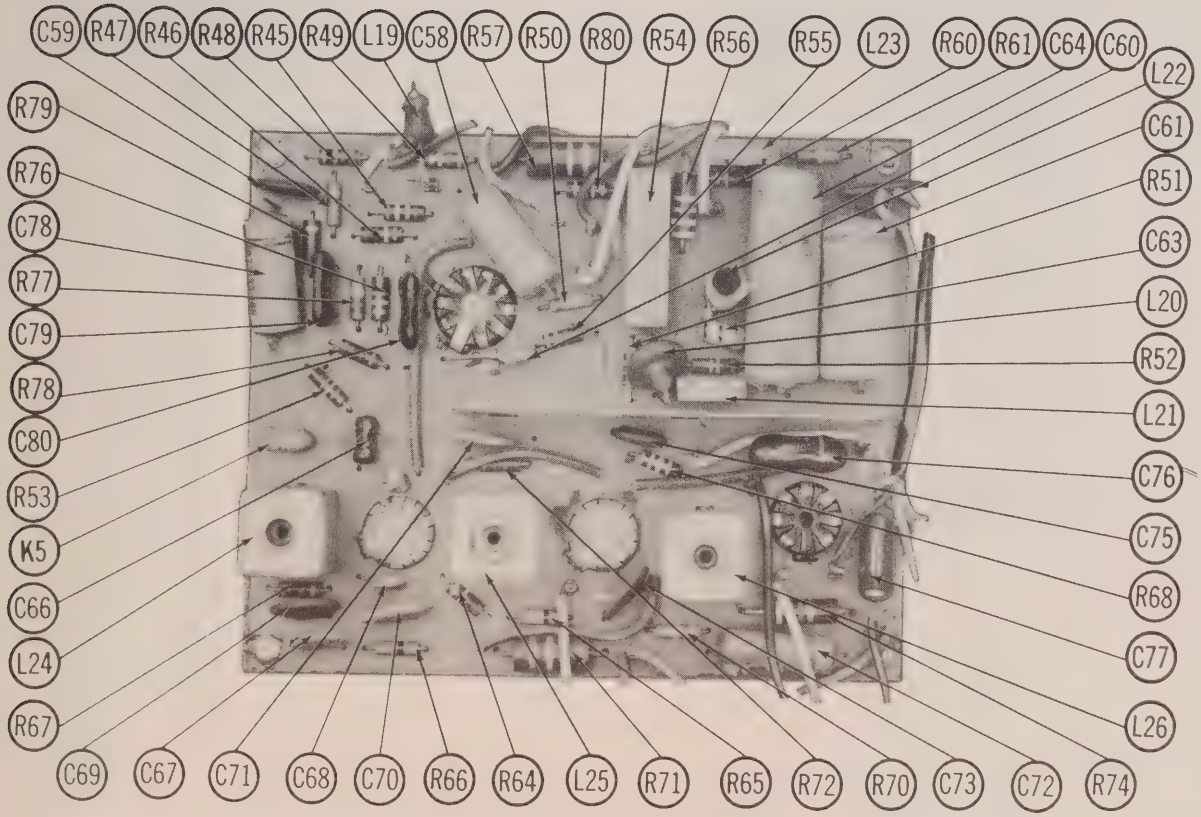
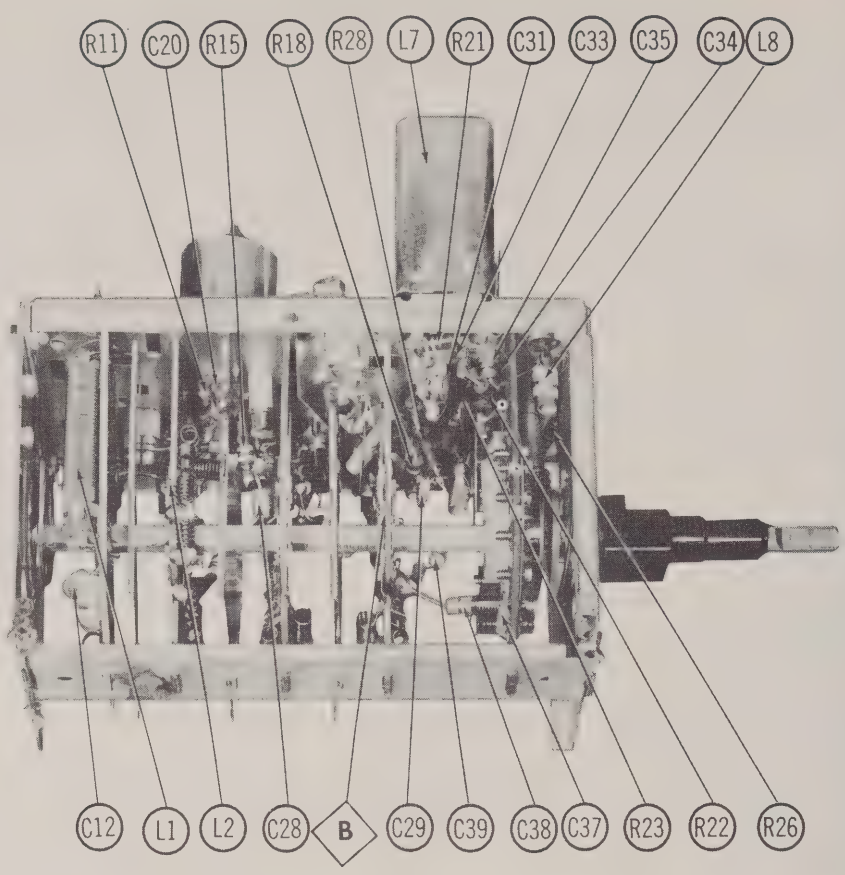


FIG. 4

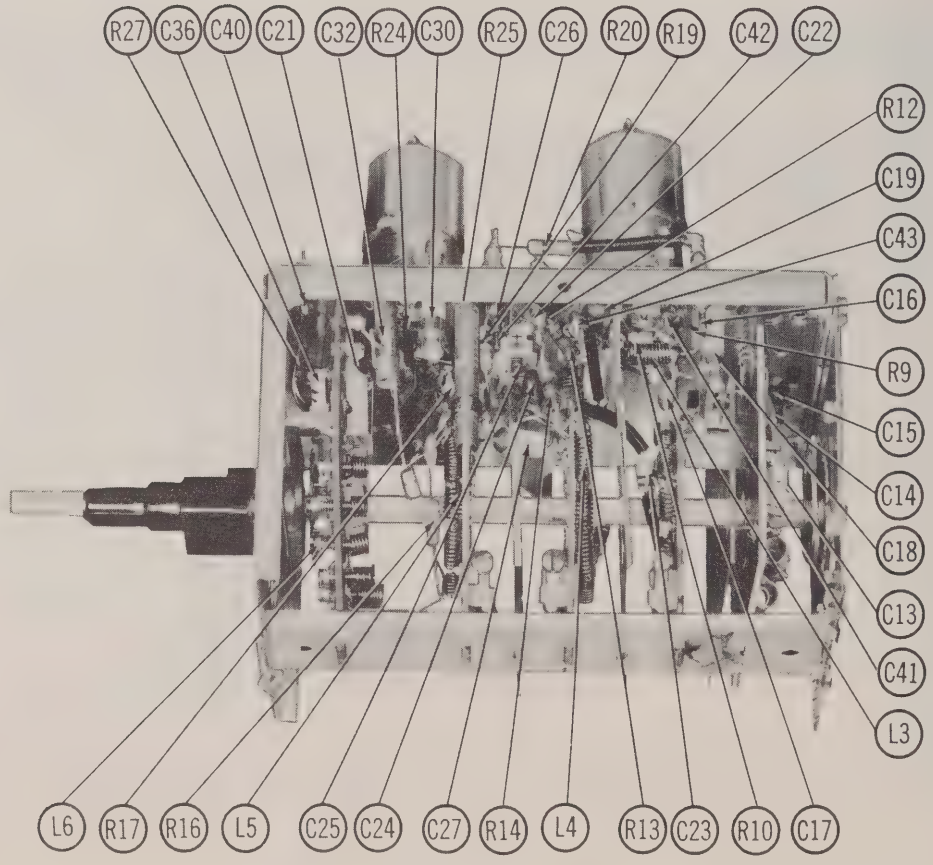
FIG. 5



VIDEO SYNC & SOUND PRINTED BOARD



RF TUNER-LEFT SIDE



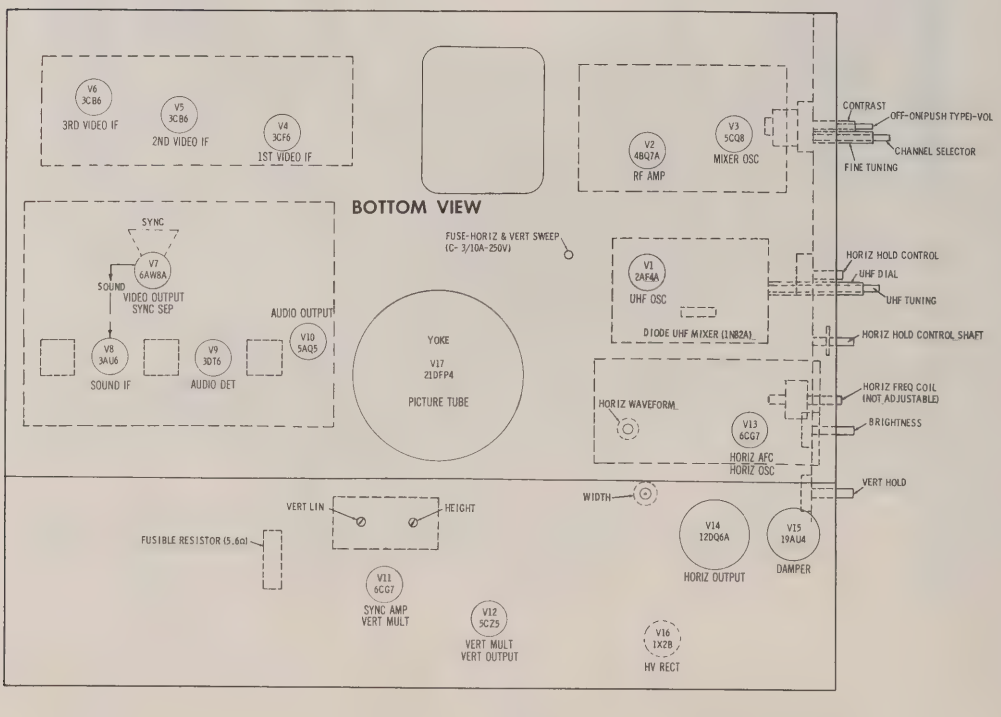
RF TUNER-RIGHT SIDE

CHASSIS-BOTTOM VIEW

RESISTANCE MEASUREMENTS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	2AF4A	*† 20K	8200Ω	2Ω	2.5Ω	.1Ω	8200Ω	*† 20K		
V2	4BQ7A	† 1300Ω	500K	600K	2Ω	1Ω	600K	1.2meg	47Ω	0Ω
V3	5CQ8	† 370Ω	100K	INF	1Ω	0Ω	INF	100Ω	INF	† 120K
V4	3CF6	460K	47Ω	11Ω	10Ω	▲ 1800Ω	▲ 6800Ω	0Ω		
V5	3CB6	▲ 15K	95K	10Ω	9.5Ω	† 680Ω	† 680Ω	95K		
V6	3CB6	.1Ω	180Ω	9Ω	9.5Ω	† 4800Ω	† 4800Ω	0Ω		
V7	6AW8A	0Ω	2.3meg	† 390K	7.5Ω	9Ω	• 600Ω	750K	† 39K	† 5600Ω
V8	3AU6	47K	0Ω	7.5Ω	6.5Ω	† 5300Ω	† 19K	82Ω		
V9	3DT6	4Ω	560Ω	6.5Ω	6Ω	‡ 560K	† 18K	470K		
V10	5AQ5	0Ω	470Ω	5Ω	6Ω	† 2100Ω	† 1800Ω	0Ω		
V11	6CG7	† 17K	33K	0Ω	14Ω	12.5Ω	• ‡ 2.3meg	• 2.3meg	0Ω	0Ω
V12	5CZ5	† 150Ω	NC	• 1.2 meg	14Ω	15Ω	• 1.2meg	0Ω	NC	† 700Ω
V13	6CG7	† 0Ω	1.3meg	170K	11Ω	12.5Ω	† 68K	• 190K	0Ω	0Ω
V14	12DQ6A	TP	17.5Ω	TP	† 5600Ω	1meg	TP	15Ω	18Ω	TOP CAP ‡ 18Ω
V15	19AU4	NC	NC	¶	NC	† 2.3Ω	NC	23Ω	17.5Ω	
V16	1X2B	PINS 1 THRU 9 HAVE INFINITE RESISTANCE								TOP CAP ‡ 348Ω
V17	21DFP4	2.5Ω	22K	‡ 900K	† 0Ω	NC	NC	• 170K	5Ω	

¶ THIS READING CAN VARY GREATLY, (10K MINIMUM), DUE TO THE CONDITION OF THE ELECTROLYTIC CAPACITOR CONNECTED IN THE ASSOCIATED CIRCUIT.
• THIS READING WILL VARY. CONTROL SET FOR NORMAL OPERATION.
† MEASURED FROM 260 V SOURCE.
‡ MEASURED FROM PIN 3 OF V15.
* MEASURED IN "UHF" POSITION.
▲ MEASURED FROM PIN 7 OF V5.
NC NO CONNECTION.
TP TIE POINT.



TUBE PLACEMENT CHART

ALTERNATE TUNER SCHEMATIC

MIXER A 5CG8
RF AMP 4BQ7A
OSC B 5CG8
5CG8 5A4
4BQ7A 5A4
FINE TUNING
TEST POINT
VHF ANT. TERMINAL BOARD
Tuner Power Plug Used In Some Versions
(IF OUTPUT) To Junction Of CA5 & CA6
(RF AGC) To Junction Of C44 & R30
To Pin 1 Of V17 (Filament String)
CHANNEL SELECTOR SWITCH SHOWN IN CHANNEL 13 POSITION
VHF Tuner Part #KRK46H & #KRK46J

PROPERTY OF
L. F. PLANTENBERGH
3924 MEADE ST.
DENVER, COLORADO

A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No	USE	TYPE	NOTES
V1	UHF Oscillator	2AF4A	
V2	RF Amplifier	4BQ7A	
V3	Mixer-Osc	5CQ8	
V4	1st Video IF Amp	3CF6	
V5	2nd Video IF Amp	3CB6	
V6	3rd Video IF Amp	3CB6	
V7	Video Output-Sync Sep	6AW8A	
V8	Sound IF Amp	3AU6	

ITEM No	USE	TYPE	NOTES
V9	Audio Det.	3DT6	
V10	Audio Output	5AQ5	
V11	Sync Amp - Vert Mult.	6GU7	
V12	Vert Mult.-Vert Output	6CG5	
V13	Horiz. AFC-Horiz. Osc.	6CG7	
V14	Horiz. Output	12GN6A	
V15	Damper	19AU4	
V16	HV Rectifier	1X2B	

PICTURE TUBE

ITEM No	REPLACEMENT DATA: GENERAL ELECTRIC PART No.	REPLACEMENT DATA: SYLVANIA PART No.	NOTES
V17	21DFP4	21DFP4 [1]	[1] Silver screen "85"

ELECTROLYTIC CAPACITORS

ITEM No	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: RCA Victor PART No.	AEROVOX PART No.	CORNELL DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1	150	300	100293	PR2-400	BBRD0334	WD480	TD-150-300	S-180	TVA-1675
C1A	250	350	140880	AFH52-4[1]-[2]	XA0415			S-230	R2463 *
B	420	350		80	4928035			MTD-3520	
C3A	100	350	100044	AFH4-56-60	00473 3	FP480.23	TMQ-187	T-537	TVL-4633
B	220	350						MT-4320	
C	40	350							
D	20	50							

* Non-catalog item.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C4	.5		104817							
C5	1.0		104816							N750 10%
C6	.5-3.5				S20-4		X15-E	CT45L		
C7	1.5		103978							N750 10%
C8	33		104815	NPO-DI 33	TCZ-33	C10Q33C	TCO-33		S7CC-Q33	NPO 5%
C9	1000		103997	EF-001	MFT-1000				503C-DL	
C10	1000		103997	EF-001	MFT-1000				503C-DL	
C11	1000		103997	EF-001	MFT-1000				503C-DL	
C12	18		103946		TCZ-18	C10Q18C	TCO-18			
C13	5		103871	NPO-DI 5	TCZ-4R7	C10Y5C	TCO-5	Z7-555	S7CCB-V4Y	5%
C14	27		100353		TCZ-27	C10Q27C	TCO-27			5%
C15	33		103873	NPO-DI 33	TCZ-33	CTA8Q33C	TCO-33	Z7-5433	S7CC-Q33	10%
C16	1000		103917	EF-001	MFT-1000				503C-DL	
C17	220		100872	BPD-00022	DD-22	L10T22	ED-220	UC-5322	5GA-T22	
C18	0.3-3.0		103953							
C19	220		100872	NPO-DI 220	D6-221	L10T22	ED-220		M3-322	10%
C20	220		100872	NPO-DI 220	D6-221	L10T22	ED-220		M3-322	10%
C21	0.5-2.0		103854							
C22	1000		103917	EF-001	MFT-1000				503C-DL	
C23	1.0		77690	NPO-EI 1.0	TCZ-1		TCO-1		S7CCB-V1	10%
C24	33		103560	1469-000033	D6-330	2SR5Q33	TCO-33			5%
C25	140-200		103919							
C26	1000		103917	EF-001	MFT-1000				503C-DL	
C27	270		77935		D6-271	L17T27	GP-270	UC-5327	5GA-T27	
C28	68		51504		TCZ-R68		TCO-.68			
C29	33		103534	NPO-DI 33	TCZ-33	C10Q33C	ED-33		S7CC-Q33	10%
C30	0.3-1.0		103583							
C31	1000		77353	BPD-001	DD-103	BYA8DI	ED-1000	DC52I	5HK-DI	
C32	1000		103917	EF-001	MFT-1000				503C-DL	
C33	470		78423		D6-471	5R5T47	ED-470		M3-347	10%
C34	7		103835		D6-470	C10Y7C				10%
C35	100		103518	EF-001L	MFT-100				503C-TI	
C36	10		103556							N330 5%
C37	47		103559	NPO-EI 47	D6-470	C10Q47C	ED-47		S7CC-Q47	10%
C38	.82		77689							10%
C39	1.2			NPO-EI 1.0	TCZ-1		TCO-1		S7CCB-V1	①
C40	1000		103917	EF-001	MFT-1000				503C-DL	
C41	1000		103917	EF-001	MFT-1000				503C-DL	
C42	1000		103917	EF-001	MFT-1000				503C-DL	
C43	1000		103917	EF-001	MFT-1000				503C-DL	
C44	47	200	73787							
C45	10-160		100849							
C46	4700		73473	BPD-0047	DD-472	BYA8D47	ED-0047	UC-5247	5HK-D47	③
C47	18		103648		TCZ-18	CTA8Q18C	TCO-18			NPO 5%
C48	.47	200	73787	P288N-47		CUB2F47		GEM-3047	2TM-P47	
C49	4700		73473	BPD-0047	DD-472	BYA10D47	ED-0047	UC-5247	5HK-D47	
C50	470		78633	BPD-00047	DD-471	BYA10T47	ED-470	UC-5347	5GA-T47	
C51	1000		77353	BPD-001	DD-103	BYA8DI	ED-1000	DC52I	5HK-DI	
C52	1000		78633	BPD-001	DD-103	BYA8DI	ED-1000	DC52I	5HK-DI	
C53	1000		77353	BPD-001	DD-103	BYA8DI	ED-1000	DC52I	5HK-DI	
C54	1000		78633	BPD-001	DD-103	BYA8DI	ED-1000	DC52I	5HK-DI	
C55	1000		77353	BPD-001	DD-103	BYA8DI	ED-1000	DC52I	5HK-DI	③
C56	7		104177			C10Y7C				NPO 5%
C57	5		104178	NPO-DI 5	TCZ-4R7	C10Y5C	TCO-5	Z7-555	S7CCB-V5	NPO 10%
C58	.1	200	78351-A	P288N-1	DF-104	CUB2P1		GEM-301	2TM-P1	
C59	6800		104902	BPD-0068	DD-682	BYA10D68	ED-0068	UC-5268	5GA-D68	
C60	470		104380	BPD-00047	DD-471	BYA10T47	ED-470	UC-5347	5GA-T47	
C61	.47	200	78648-A	P288N-47		CUB2F47		GEM-3047	2TM-P47	
C62	1500		104690			1R5D15	ED-1500		M3-315	10%
C63	9		104691			C10Y9C				NPO 5%
C64	.22	600	104645		P668N-22	CUB5P22		GEM-6022	6TM-P22	
C65	.068	1000	73785		P108N-068	CUB10S68		GEM-10168	10TM-S68	
C66	3	1000	104204							N750
C67	2700		104121			1R5D27			M3-327	10%
C68	680		104126	BPD-00068	DD-681	BYA10T68	ED-680	UC-5368	5GA-T68	
C69	10000		73980	BPD-01	DD-103	BYA8SI	ED-01	DC51I	5HK-SI	
C70	10000		73980	BPD-01	DD-103	BYA8SI	ED-01	DC51I	5HK-SI	
C71	10000		73980	BPD-01	DD-103	BYA8SI	ED-01	DC51I	5HK-SI	
C72	.047	200	104133	P288N-047	DF-503	CUB2S47		GEM-6147	2TM-S47	
C73	10000		73980	BPD-01	DD-103	BYA8SI	ED-01	DC51I	5HK-SI	
C74	.068	1000	73815	P108N-068		CUB10S68		GEM-10168	10TM-S68	
C75	1300			DI 1300	DD-122	L20L13	ED-1300	UC-5313	5GA-DL3	③

PARTS LIST AND DESCRIPTIONS

CAPACITORS (cont)

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: RCA Victor PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C76	.01	600	104898		P68BN-01	D6-103	CUB6B1	GP-10000	GEM-6B1	6TM-S1
C77	.0033	1000	104900							10%
C78	.027	400	103131-A							
C79	330		103856		1469-00033	D6-331	SR5T33	ED-330		M3-333 10%
C80	330		103856		1469-00033	D6-331	SR5T33	ED-330		M3-333 10%
C81	.033	400	104143		P68BN-033		CUB6S33		GEM-6133	6TM-S33
C82	330		103856		1469-00033	D6-331	SR5T33	ED-330		M3-333 10%
C83	.0056	600	104906							10%
C84	.0056	600	104906							10%
C85	.0047	600	73920							10%
C86	.01	300	101000-A							10%
C87	.15	200	104908							10%
C88	.012	400	104196							10%
C89	.039	400	104907							10%
C90	.022	600	104145		P68BN-022	DD-203	CUB6S22	ED-02	GEM-6122	6TM-S22
C91	.1	400	104487		P68BN-1	DF-104	CUB4P1		GEM-401	4TM-P1
C92	.1	400	104487		P68BN-1	DF-104	CUB4P1		GEM-401	4TM-P1
C93	.027	600	75345							10%
C94	1000	2000	104222							10%
C95	.047	400	104909		P68BN-047	DF-503	CUB4S47		GEM-4147	4TM-S47
C96	.0047	600	104810		P68BN-0047	D6-472	CUB5D47	GP-4700	GEM-5347	5TM-D47
C97	82	1000	78474							5%
C98	68	1000	78475							5%
C99	.022	400	103351-A		P468N-022	DD-203	CUB4B22	ED-03	GEM-4122	4TM-S22
C100	.47	200	78148-A		P468N-47		CUB2P47		GEM-3047	2TM-P47
C101	470	1000	104147							5%
C102	.01	400	73594							5%
C103	680				BPD-00068	DD-681	BYA10T68	ED-680	UC-5368	5GA-T68 ①
C104	.0012	600	76995							5%
C105	.0015	1000	77133							10%
C106	.1	600	73587		P68BN-1	DF-104	CUB6P1		GEM-601	6TM-P1
C107	.1	600	73587		P68BN-1	DF-104	CUB6P1		GEM-601	6TM-P1
C108	.033	400	73583							10%
C109	390	2000	104891							10%
C110	390	2000	104891							10%
C111	68									
C112	120									
C113	120									
C114	1000		77353		BPD-001	DD-103	BYA8DI	ED-1000	DC52I	5HK-DI
C115	10000		73980		BPD-01	DD-103	BYA8SI	ED-01	DC51I	5HK-SI
C116	10000	1000	100910		DAC-27		CUB10SI		GEM-1011	BL-S10
C117	.047	600	73592		P68BN-047	DF-503	CUB6S47		GEM-6147	6TM-S47
C118	4700		73473		BPD-0047	DD-472	BYA10D47	ED-0047	UC-5347	5HK-D47
C119	39000									⑤

① Some versions may use a 1.0mmf 10% (Part #77890) in this application.
② In Ch. KCS107C, D a 470mmf is used in this application.
③ Some versions may use a 470mmf (Part #73473) in this application.
④ Some versions may use a .0033 mfd 10% (part #104899) in this application.
⑤ Not used in some versions.
⑥ Some versions may use a 10000mmf (Part #73960) in this application.

CONTROLS

ITEM No	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: RCA Victor PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	3000Ω	1	104678				UE404S	Contrast - Tap ⑥ 2500Ω-①
B	1meg						Not Req.	Volume
C	Switch						Not Req.	
R2A	5meg		104679	AB-S7	A47-5meg-S		PTA56L	Horiz. Hold
B	8Shaft			AK-19	RN-3		Not Req.	
R3A	200K		103409	B-46	A47-200K-S	Q1I-120	U43	Brightness
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
R4A	1.5meg		103410	B-745	A47-1.5meg-S	Q1I-138	TA15SL	Vert. Hold
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
R5A	5meg		[redacted]					Height
B	1.5meg							Vert. Linearity

① Alternate part #105065 used in chassis KCS107C, D.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING: OHMS	RATING: WATT	RCA Victor PART No.	NOTES
R6	8200Ω		502282	
R7	8200Ω	1	512268	
R8	12K	2	522312	
R9	30K		502310	
R10	100K		502410	
R11	47Ω		502047	
R12	1meg		502510	
R13	1meg		502510	
R14	1000Ω		502210	
R15	470Ω		502147	
R16	3300Ω			Note 1
R17	100K		502410	
R18	100K		502410	
R19	15Ω		502015	
R20	100Ω		502110	
R21	27K 5%		502327	
R22	1000Ω		502210	
R23	100Ω		502110	
R24	100K		502410	
R25	100Ω		502110	
R26	82K		[redacted]	
R27	15Ω			
R28	1000Ω		502210	
R29	270Ω		502127	
R30	1meg		502510	
R31	47K 5%		502347	
R32	150Ω		502115	Note 2
R33	1000Ω		502210	
R34	47K 5%		502347	
R35	680Ω		502268	
R36	100K		502410	
R37	47Ω 5%		502047	
R38	150K 5%		502415	
R39	150K 5%		502415	
R40	680Ω		502268	

ITEM No	RATING: OHMS	RATING: WATT	RCA Victor PART No.	NOTES
R41	15K		502315	
R42	470Ω		502147	
R43	1600 5%		502218	
R44	39000 5%		502239	
R45	680K		502468	
R46	220K		502422	
R47	1.2meg		502512	
R48	82K		502382	
R49	820K		502482	
R50	680K		502468	
R51	22K		502322	
R52	12K		502312	
R53	27K		502327	
R54	5600Ω	5	104897	
R55	330Ω		502233	
R56	39K	1	502339	
R57	56K	2	502356	
R58	3300Ω		502233	
R59	33Ω			Note 3
R60	15K		502315	
R61	150K		502415	
R62	22K		502322	
R63	820K		502482	
R64	150K		502415	
R65	1000Ω		502210	
R66	1000Ω		502210	
R67	62Ω		502082	
R68	390K		502439	
R69	100K		502410	
R70	470K		502447	
R71	18K	3	522318	
R72	560Ω		502256	
R73	1800Ω	3	522318	
R74	47Ω	1	512147	
R75	470K		502447	

RESISTORS (cont)

ITEM No.	RATING: OHMS	RATING: WATT	RCA Victor PART No.	NOTES
R100	150Ω		502115	
R101	150Ω		502115	
R102	3.5Ω Cold		502512	
R103	1.5meg		502515	
R104	100K 5%		502410	
R105	220K		502422	
R106	68K	1	512368	
R107	82K 5%		502382	
R108	120K 5%	1	512412	
R109	3900Ω		502339	
R110	1.5meg		502515	
R111	68K		502368	
R112	47Ω		502047	
R113	1meg		502510	
R114	10meg		502610	
R115	10meg		502610	
R116	5600Ω	2	512356	
R117	18Ω	1	104987	
R118	68K		502368	
R119	4700Ω		502347	
R120	0.39Ω		104181	
R121	4300Ω	7	104886	
R122	5.6Ω	20	104889	
R123	5.6Ω		100117	

ITEM No.	RATING: OHMS	RATING: WATT	RCA Victor PART No.	NOTES
R78	270K		502427	
R77	560K		502456	
R78	10meg		502610	
R79	3.3meg		502533	
R90	390K		502439	
R91	33K		502333	
R92	560K		502456	
R93	10K	1	513310	
R94	3700Ω		502327	
R95	82K		502382	
R96	6.8meg		502568	
R97	1.5meg		502515	
R98	820K		502482	
R99	220K		502422	
R100	270K		502427	
R101	560K		502456	
R102	10meg		502610	
R103	3.3meg		502533	
R90	390K		502439	
R91	33K		502333	
R92	560K		502456	
R93	10K	1	513310	
R94	3700Ω		502327	
R95	82K		502382	
R96	6.8meg		502568	
R97	1.5meg		502515	
R98	820K		502482	
R99	220K		502422	
R100	270K		502427	
R101	560K		502456	
R102	10meg		502610	
R103	3.3meg		502533	
R90	390K		502439	
R91	33K		502333	
R92	560K		502456	
R93	10K	1	513310	
R94	3700Ω		502327	
R95	82K		502382	
R96	6.8meg		502568	
R97	1.5meg		502515	
R98	820K		502482	
R99	220K		502422	
R100	270K		502427	
R101	560K		502456	
R102	10meg		502610	
R103	3.3meg		502533	
R90	390K		502439	
R91	33K		502333	
R92	560K		502456	
R93	10K	1	513310	
R94	3700Ω		502327	
R95	82K		502382	
R96	6.8meg		502568	
R97	1.5meg		502515	
R98	820K		502482	
R99	220K		502422	
R100	270K		502427	
R101	560K		502456	
R102	10meg		502610	
R103	3.3meg		502533	
R90	390K		502439	
R91	33K		502333	
R92	560K		502456	
R93	10K	1	513310	
R94	3700Ω		502327	
R95	82K		502382	
R96	6.8meg		502568	
R97	1.5meg		502515	
R98	820K		502482	
R99	220K		502422	

Note 1. Some versions may use 3900Ω (Part #502239) in this application.
Note 2. Not used in Chassis KCS107C, D.
Note 3. Some versions may use 68Ω (Part #502068) in this application.

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No	USE	REPLACEMENT DATA: RCA Victor PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T1	Vert. Output	104877							
T2 A	Yoke-Horiz. (7.6MHz)	105053 [1]				DY-26A			
B	(110°)-Vert. (.05MH)								
M8	Rear Cover and Centering Device	104077							
T3	Horiz. Output	104878							
T4	Width Coil (1.8-11MH)	104086		MWC-9 ②	20LR12 ②	WC-8	WC-22	WLC-5	

① Includes resistors R100, R101, R103 and capacitors C111, C113 and C113.
② Do not use tap.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE: PRI.	IMPEDANCE: SEC.	REPLACEMENT DATA: RCA Victor PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T5	7600Ω	3-4Ω	100037	ZI003	A-3020	A-3849	26S48	S-9Z	

SPEAKER

ITEM No.	TYPE: SIZE	TYPE: FIELD	TYPE: V. C. IMP.	REPLACEMENT DATA: RCA Victor PART No.	QUAM PART No.	NOTES
SP1	5"	PM	3-4Ω	104981 [1]	5A07R	[1] Used in Models 21-PD-815, U, 21-T-8245, U, 21-T-8246, U, 21-T-8247, U, 21-T-8475, U, [2] Used in Models 21-T-8478, U, 21-T-8477, U, 21-T-8478, U
	6" x 9"	PM	3-4Ω	101182 [2]	6S43	

COILS (RF-IF)

ITEM No.	USE	RCA Victor PART No.	NOTES
L1	VHF Ant. Input Assy.	103835	
L3	VHF Ant. Coils	103584	Channel 2-13, includes C17, C23 and stator assembly
L3	Next. Coil	78562	
L4	VHF RF Coils	103890	Channels 2-13, includes C24, C25, R14, R15 & stator assy.

ITEM No.	USE	RCA Victor PART No.	NOTES
L5	VHF Mixer Grid Coils	103581	Channels 2-13, includes C27 & stator assy.
L6	VHF Osc. Coils	103549	Channels 2-13, includes C26, C37, C39 & stator assy.
L7	Mixer Plate Coil	104444	
L8	UHF IF Input Trans.	103868	

ITEM No.	USE	RCA Victor PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	NOTES
L9	47.25MC Trap	104141				
L10	RF Choke	103894				
L11	1st. Video IF	104140				
L12	Fil. Choke					
L13	2nd. Video IF	104139				
L14	Fil. Choke					
L15	3rd. Video IF	104139				
L16	4th. Video IF	104139				
L17	Series Peaking Coil	102639	19-1008	TV-123	6153	18 Microhenries
L18	Shunt Peaking Coil	104320	19-3500	TV-129	6155	300 Microhenries
L19	Series Peaking Coil	102639	19-1006	TV-123	6153	18 Microhenries
L20	Series Peaking Coil	104904	19-3180	TV-184	6180	180 Microhenries
L21	Series Peaking Coil	104904	19-3180	TV-184	6180	180 Microhenries
L22	4.5MC Trap	104903				
L23	Series Peaking Coil	104339	19-3155	TV-196	6153	150 Microhenries
L24	1st. Sound IF	104138				Includes cap.
L25	2nd. Sound IF	104137				Includes cape.
L26	Quadrature Coil	104324				Includes cap. & resistor
L27	RF Choke	78510			4608	4.7 Microhenries, IRC part #CL-1
L28	RF Choke	78510			4608	4.7 Microhenries, IRC part #CL-1

RCA VICTOR MODELS 21-PD-815, U, 21-T-8245, U, 21-T-8246, U, 21-T-8247, U, 21-T-8475, U, 21-T-8477, U, 21-T-8478, U (Ch. KCS-107A, B, C, D)

FOLDER 4

PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (HORIZ. OSC.)

ITEM No.	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA: RCA Victor PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	Thordarson PART No.	NOTES
L29	72Ω *		104087						Horiz. Freq. 64 Millihenries Horiz. Waveform * Tapped @ 50Ω
L30	40Ω		100300						

FILTER CHOKE

ITEM No.	RATINGS: TOTAL DIRECT CURRENT	D. C. RESISTANCE	INDUCTANCE (0 CURRENT 1000 ~)	REPLACEMENT DATA: RCA Victor PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
L31	.280A	47Ω	1.1 Hy.	102638	C5037 ①	C-2991 ①	C-2326 ①	26C44①	C-24X

① Drill new mounting hole.

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	RCA Victor PART No.	REPLACEMENT DATA	
K1	Antenna Isolation	470mmf, .3-1meg	104328	Centralab	RC-471
K2	Antenna Isolation	470mmf, .3-1meg	104328	Centralab	RC-471
K3	Antenna Isolation	470mmf, .3-1meg	104328	Centralab	RC-471
K4	Antenna Isolation	470mmf, .3-1meg	104328	Centralab	RC-471
K5	Sound IF Grid	56mmf, 47K	104329	Centralab	RC-421

RECTIFIERS

ITEM No.	RATING: CURRENT (Measured)	REPLACEMENT DATA: RCA Victor PART No.	FEDERAL PART No.	GENERAL ELECTRIC PART No.	INTERNATIONAL PART No.	SARKES TARZIAN PART No.	NOTES
M1	.280A	104483 ①	1023A ①	1N1007 ②	MR350 ①	350A ① M500 ③	① Selenium type. ② Germanium type. ③ Silicon type.
M2	.280A	104483 ①	1023A ①	1N1007 ②	MR350 ①	350A ① M500 ③	

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA: RCA Victor PART No. FUSE	RCA Victor PART No. HOLDER	LITTELFUSE PART No. FUSE	LITTELFUSE PART No. HOLDER	BUSS PART No. FUSE	BUSS PART No. HOLDER
M3	C	3/10A 250V	102164	102162	332.300 (C 3/10A 250V)	346001	C 3/10	HC 0 to 3/10

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA: RCA Victor PART No.	CBS PART No.	SYLVANIA PART No.	NOTES
M4	1N82A *	104001	1N82A	1N82A	UHF Mixer (Clip-in)
M5	1N60R	76675-A	1N60	1N60	Video Detector (Pigtail)

* A K3D may be used in some versions.

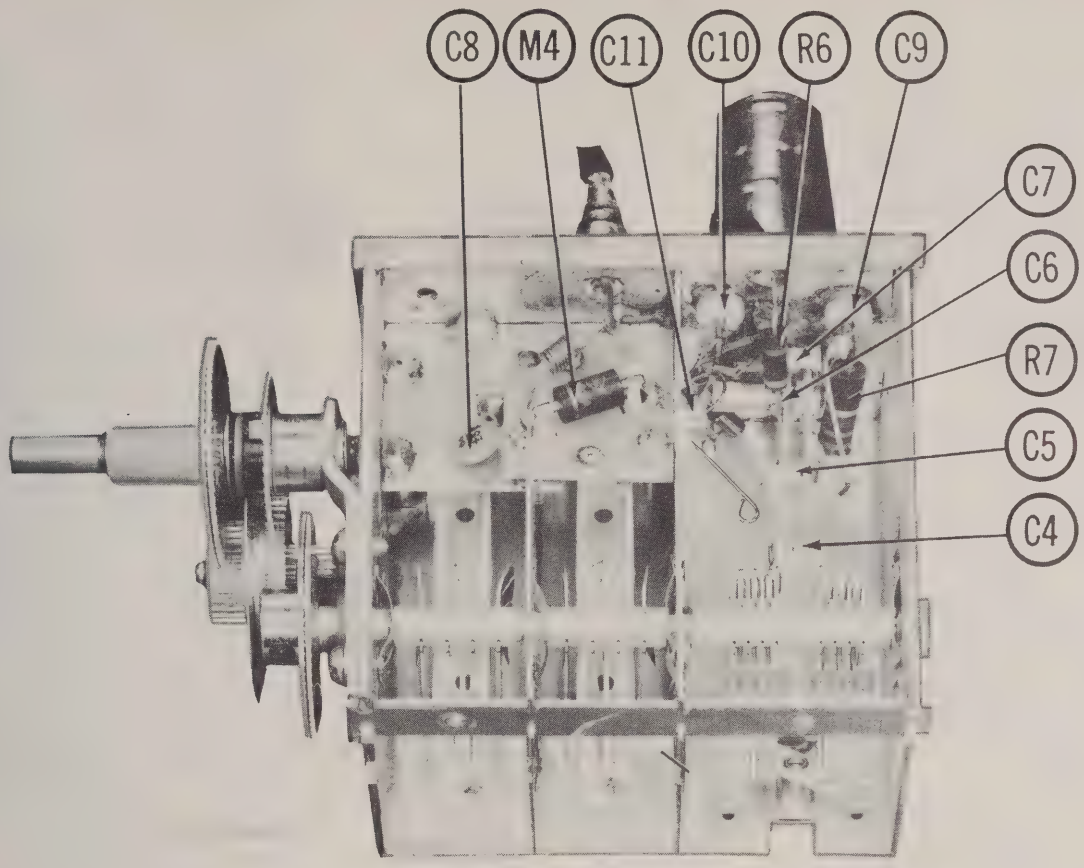
MISCELLANEOUS

ITEM No.	PART NAME	RCA Victor PART No.	NOTES
M6	Tuner	KRK47H	VHF - Ch. KCS107B
M7	Tuner	KRK64B	UHF - Ch. KCS107B
	Tuner	KRK46H	VHF - Ch. KCS107A
	Tuner	KRK63A	VHF Assembly, includes VHF tuner part #KRK46J (Ch. KCS107C)
	Tuner	KRK63B	UHF-VHF Assembly, includes VHF tuner part #KRK47J and UHF tuner part #KRK64D (Ch. KCS107D)
M8	Centering Device	104077	Includes yoke cover
	Yoke Clamp	104409	
	Printed Board	104864	Sound IF, Video and Sync Assembly, less tubes
	Printed Board	104865	Video IF Circuit Assembly, less tubes
	Printed Board	104866	Vert. Circuit Assembly, less tubes
	Printed Board	104867	Horiz. Circuit Assembly, less tubes

CABINETS & CABINET PARTS

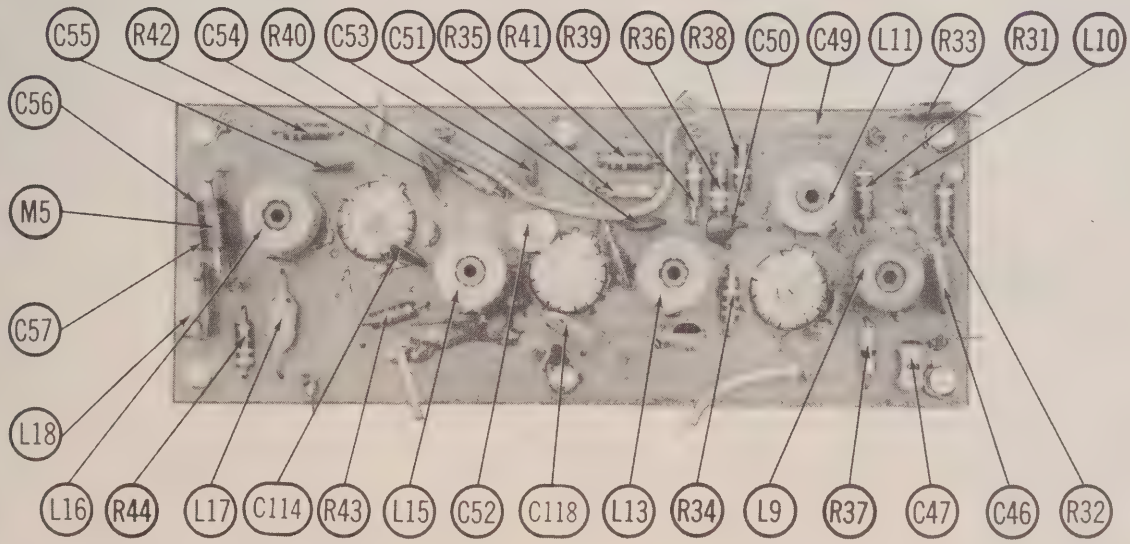
(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Safety Glass	104641	Models 21-T-8245, U, 21-T-8246, U, 21-T-8247, U
Safety Glass	104252	Models 21-T-8475, U, 21-T-8477, U, 21-T-8478, U
Safety Glass	104642	Models 21-PD-8115, U
Mask	104633	Picture tube, Models 21-PD-8115, U, 21-T-8245, U, 21-T-8246, U 21-T-8247, U
Escutcheon	104632	Metal cabinet front
Cabinet	Z4219	Models 21-T-8245, U
Cabinet	Z4221	Models 21-PD-8115, U
Cabinet	Z4211	Models 21-T-8246, U
Cabinet	Z4220	Models 21-T-8247, U
Cabinet	M4253	Models 21-T-8475, U
Cabinet	M4254	Models 21-T-8477, U
Cabinet	M4255	Models 21-T-8478, U
Handle	104649	Models 21-PD-8115, U
Cabinet Leg	X3900	Models 21-T-8475, U
Cabinet Leg	X3901	Models 21-T-8477, U
Cabinet Leg	X3902	Models 21-T-8478, U



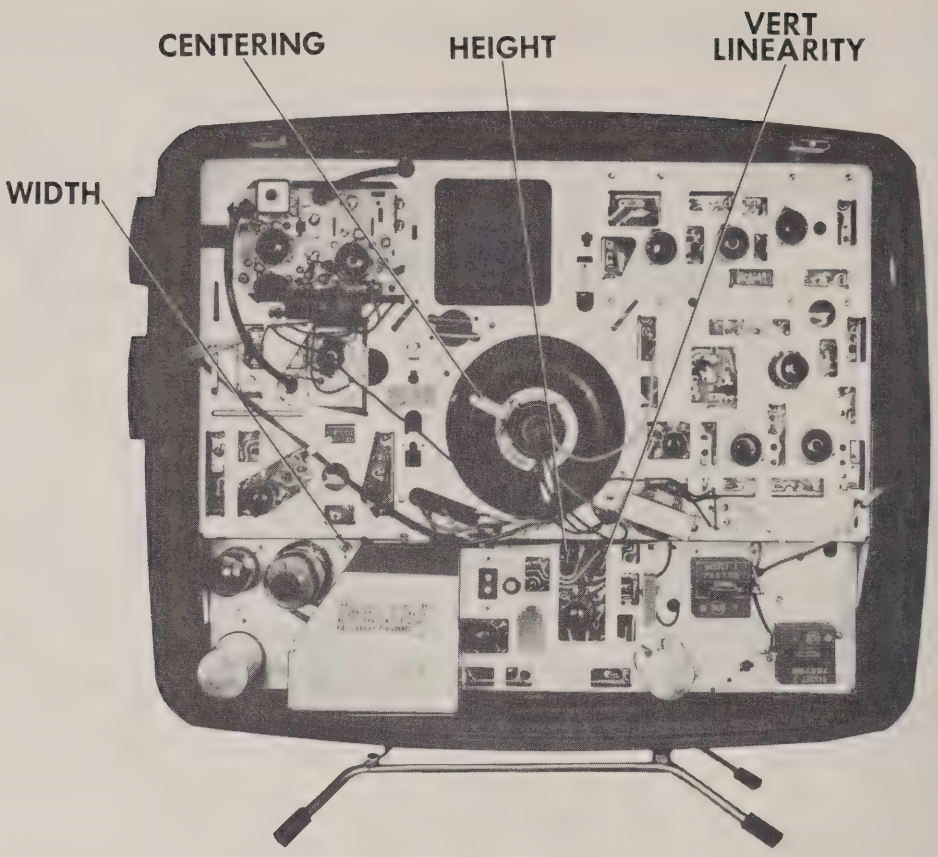
UHF TUNER

PROPERTY OF
L & T ELECTRONICS
DENVER, COLORADO



VIDEO IF—PRINTED BOARD

FOLDER 4



CABINET—REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Adjust width slug (B1) for a picture which overscans the screen by approximately 3/4 inch on each side. This adjustment should be made with the brightness control set for normal operation.

Connect the vertical amplifier of the scope thru a low capacity probe to point (F). Low side to chassis. Turn the horizontal hold control clockwise until the picture falls out of sync, then counter clockwise until the picture just falls into sync. Adjust the horizontal waveform slug (B2) until the round and sharp peaks are of equal amplitude as in Fig. 6. Keep the picture in sync during this adjustment with the horizontal hold control, if necessary.

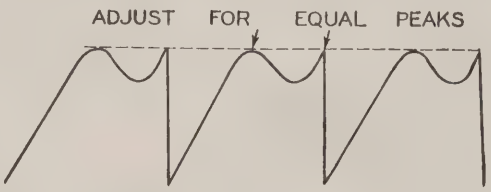
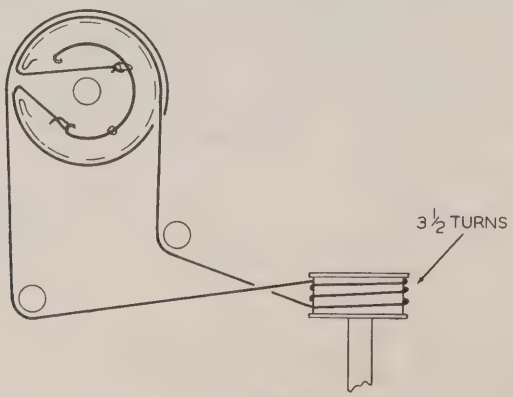


FIG. 6



DRIVE CORD STRINGING

SUPPLEMENTAL DATA TO PHOTOFACT FOLDER 6 IN SET 348

Magnavox Chassis V18-01AA, V18-01BB, V18-02AA, V18-02BB, V18-03AA, V18-03BB, V18-04AA, V18-04BB, U18-01AA, U18-01BB, U18-02AA, U18-02BB, U18-03AA, U18-03BB, U18-04AA and U18-04BB (18 Series) were covered in Photofact Folder 6 — Set 348.

Chassis V18-01CB, V18-01DC, V18-02CB, V18-02DC, V18-03CB, V18-03DC, V18-04CB, V18-05CB, V18-05DC, V18-06DC, U18-01CB, U18-01DC, U18-02CB, U18-02DC, U18-03CB, U18-03DC, U18-04CB, U18-05CB, U18-05DC and U18-06DC (18 Series) are added, along with late production changes, with the publication of this bulletin.

Chassis
U/V18-01AA, BB
U/V18-02AA,BB
U/V18-03AA,BB
U/V18-04AA,BB

COMPONENT CHANGES

M6 (Video Det. Assy.) is changed to part #360643-1.

L17 (Quadrature Coil) is changed to part #360651-2.

M4 (Tuner) is changed to part #700530-3.

M5 (Tuner) is changed to part #700541-5.

Chassis
U/V18-01CB, DC
U/V18-02CB, DC
U/V18-03CB, DC
U/V18-04CB
U/V18-05CB, DC
U/V18-06DC

COMPONENT CHANGES

M6 (Video Det. Assy.) may be part #360643-1 or 360638-1.

L15 (1st. Sound IF) is changed to part #360714-1.

L17 (Quadrature Coil) is changed to part #360716-1.

C36 is increased from 68mmf to 82mmf.

C64 is increased from .027mfd to .047mfd.

C69 is increased from 1.2meg to 2meg.

A 15Ω, ½ watt resistor is added from pin 8 of V15 (Horiz. Output) to ground.

A 680mmf @ 500V ceramic disc capacitor is added from C2B to ground.

VHF TUNER CHANGED

VHF tuner #700584-5 and 700584-6 are used and are electrically identical to the VHF tuner covered, except for the following changes.

VHF Tuner
#700584-5
#700584-6

C22 is decreased from .18mfd to .15mmf.

VHF Tuner
#700584-5

R18 is a 10K, ½ watt resistor.

C25 is 27mmf.

C35 is .56mmf.

C34 is 2.2mmf.

VHF Tuner
#700584-6

R18 is a 3300Ω, ½ watt resistor.

C25 is 470mmf.

C35 is .36mmf.

C34 is omitted.

NEW AUDIO CIRCUIT

V10 (Audio Output) is changed from 6W6GT to 6DG6GT. In some chassis V10 will become a voltage divider circuit. Partial schematics showing the new circuits are given in Fig. 1 and Fig. 2.

Magnavox Chassis V18-01AA, V18-01BB, V18-01CB, V18-01DC, V18-02AA, V18-02BB, V18-02CB, V18-02DC, V18-03AA, V18-03BB, V18-03CB, V18-03DC, V18-04AA, V18-04BB, V18-04CB, V18-05CB, V18-05DC, V18-06DC, U18-01AA, U18-01BB, U18-01CB, U18-01DC, U18-02AA, U18-02BB, U18-02CB, U18-02DC, U18-03AA, U18-03BB, U18-03CB, U18-03DC, U18-04AA, U18-04BB, U18-04CB, U18-05CB, U18-05DC, U18-06DC (18 Series)

(Continued on Reverse Side)

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The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1958 Howard W. Sams & Co., Inc., Indianapolis 5, Indiana. Printed in U.S. of America

Chassis U/V18-05CB, DC U/V18-06DC	COMPONENT CHANGE A 1.7 microhenry cathode choke (part #360620-1) is added between pin 1 of V7 (Video Output) and R2 (Contrast).
Chassis U/V18-06DC	COMPONENT CHANGE R70 is omitted.
Chassis U/V18-01CB U/V18-02CB U/V18-03CB U/V18-04CB U/V18-05CB	COMPONENT CHANGE R1A (Volume) is changed to part #220135-1. Replacement data for this part is given in the chart below.
Chassis U/V18-01DC U/V18-02DC U/V18-03DC U/V18-05DC U/V18-06DC	COMPONENT CHANGES T2 (Vert. Osc. Trans.) is changed to part #320262-2. C46 is increased from 68mmf to 100mmf. R1A (Volume) is decreased from 1meg to 500K (part #220135-4). R3 (Vert. Hold) is increased from 1.25meg to 1.5meg (Part #220132-13). Replacement data for this part is given in the chart below.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	MAGNAVOX PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	1meg	½	220135-1	B-70	A47-1meg-Z	Q13-137	U53	Volume
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
C	Switch			KB-1 or KR-1 *	SWE-12	76-1	US-26	
R3A	1.5meg	½	220132-13	B-742	A47-1.5meg -S	Q11-138	TA155L	Vert. Hold
B	Shaft			Not Req.	FKS-1/4	Not Req.	Not Req.	

* Use KR-1 on red label control only.

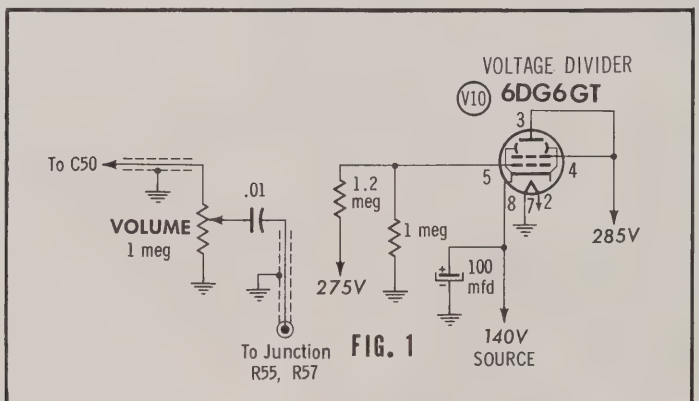

FIG. 1

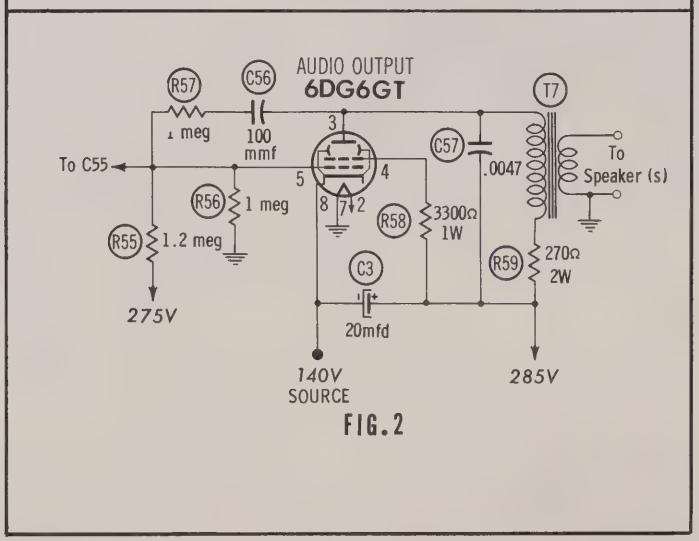

FIG. 2

SUPPLEMENTAL DATA TO PHOTOFACT FOLDER 2 IN SET 279

CORONADO MODELS TV2-9414C, D, E, TV2-9415C, D, E, TV2-9416C, D, E, TV2-9417C, D, E, TV2-9418C, D, E, TV2-9419C, D, E, TV2-9420C, D, E, TV2-9421C, D, E

	Coronado Models TV2-9414A, B, TV2-9415A, B, TV2-9416A, B, TV2-9417A, B, TV2-9418A, B, TV2-9419A, B, TV2-9420A, B, TV2-9421A, B, TV2-9422A, TV2-9423A, TV2-9424A and TV2-9425A were covered in Photofact Folder 2 – Set 379. Models TV2-9414C, D, E, TV2-9415C, D, E, TV2-9416C, D, E, TV2-9417C, D, E, TV2-9418C, D, E, TV2-9419C, D, E, TV2-9420C, D, E and TV2-9421C, D, E are electrically identical to the models covered except for the following changes.
TV2-9414C TV2-9415C TV2-9416C TV2-9417C TV2-9418C TV2-9419C TV2-9420C TV2-9421C	VIDEO IF TUBES CHANGED V3 (1st. Video IF) and V4 (2nd. Video IF) are changed from 3CB6 to 3BZ6. COMPONENT CHANGES C39 is removed and replaced with a dual ceramic capacitor, each section 1000mmf @ 500V. The "A" section is connected from the junction of R19, R20, R24 to ground and the "B" section is connected from R22 to ground. R20 is omitted. A 150Ω, $\frac{1}{2}$ watt resistor is added from the junction of R19 and R24 to the 125 voltage source. In VHF models only, R83 is decreased from 1700Ω to 1300Ω. In UHF/VHF models only, R83 is decreased from 2500Ω to 2000Ω. R35 is increased from 47Ω to 68Ω.
TV2-9414D TV2-9415D TV2-9416D TV2-9417D TV2-9418D TV2-9419D TV2-9420D TV2-9421D	TO COMPLY WITH FCC REGULATIONS AS TO RADIATION V13 (horizontal output) and V14 (damper) are relocated in the filament string. V13 and V14 are now connected between pin 1 of V16 and pin 3 of V1. V11 (audio output) now becomes the first tube in the filament string. C75 is omitted. A .22mfd @ 400V capacitor is added across the AC interlock. T1 (pilot light trans.) is changed to part #54X18. PICTURE TUBE CHANGED V16 (picture tube) is changed from 21ATP4 to 21BTP4.
TV2-9414E TV2-9415E TV2-9416E TV2-9417E TV2-9418E TV2-9419E TV2-9420E TV2-9421E	NEW VHF TUNER Issue "D" models use VHF tuner #25A1156. A schematic showing the new tuner is given on the reverse side.

(Con't on Reverse Side)

PROPERTY OF
L [illegible] NSHIP
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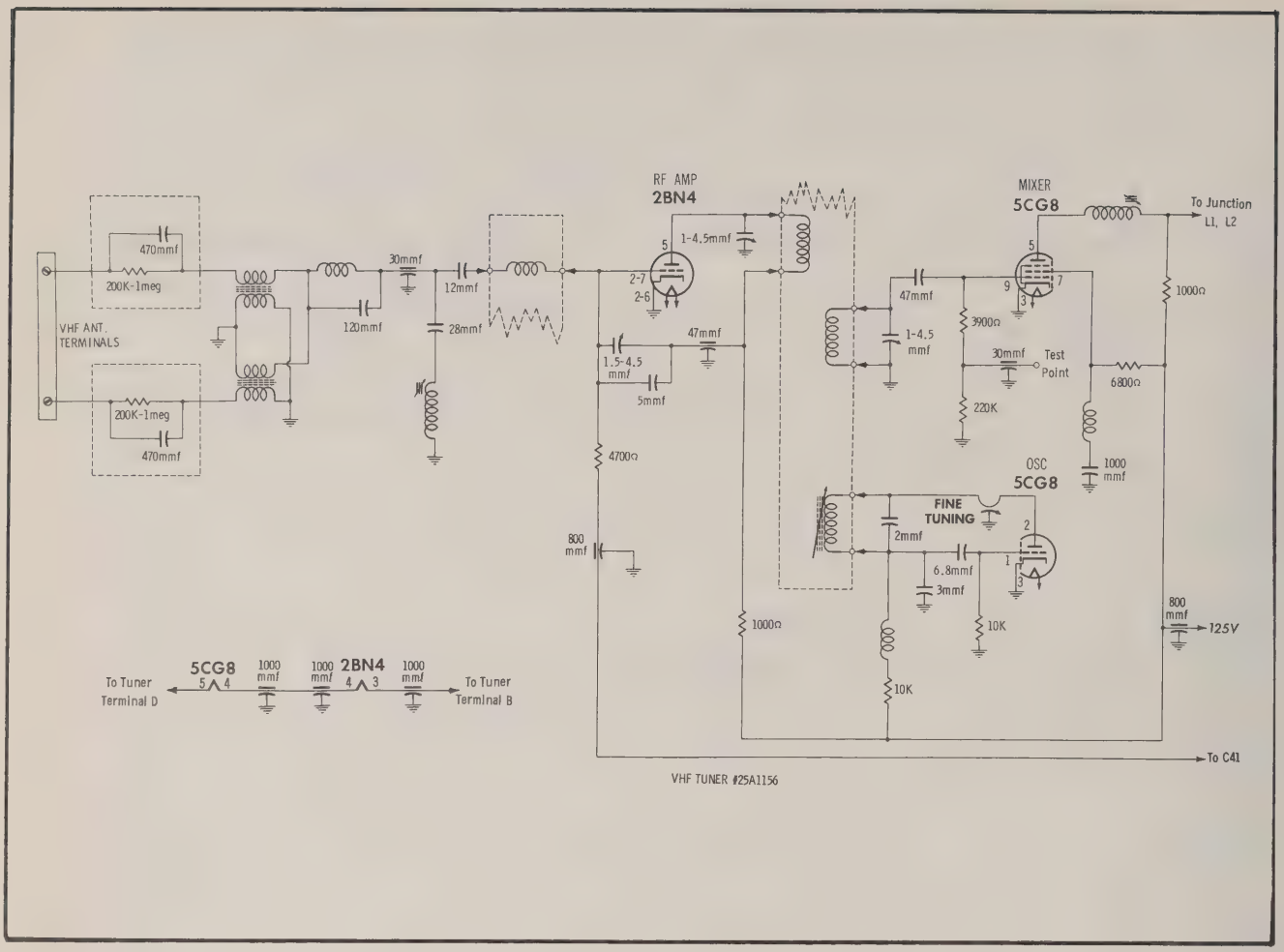
[illegible], COLORADO

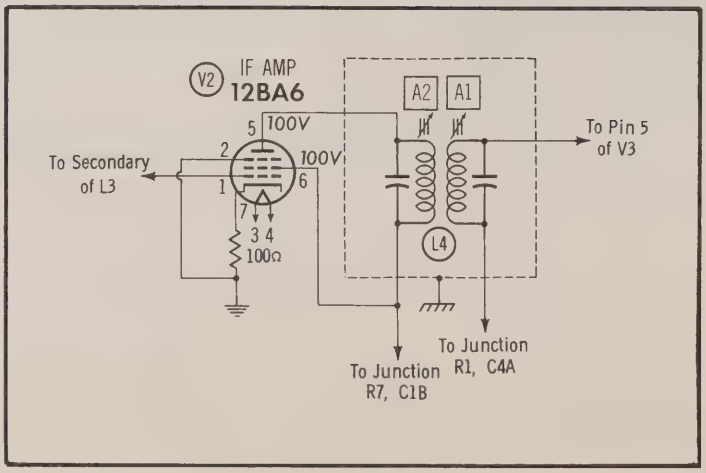
SUPPLEMENTAL DATA TO PHOTOFACT FOLDER 20 IN SET 266

WESTINGHOUSE MODELS H-475T5, H-476T5, H-477T5, H-478T5 (Ch. V-2236-1)

	Westinghouse Models H-475T5, H-476T5, H-477T5 and H-478T5 (Ch. V-2236-1) were covered in Photofact Folder 20 – Set 266. The following changes were made during late production.
	COMPONENT CHANGES R6 is increased from 150Ω to 180Ω. R7 is increased from 1000Ω to 1500Ω. A 4mmf capacitor is added in parallel with the adjustable trimmer at A5 IF AMP CIRCUIT REVISED The IF amplifier circuit has been revised. A partial schematic showing the new circuit is given on the reverse side.

(Con't on Reverse Side)

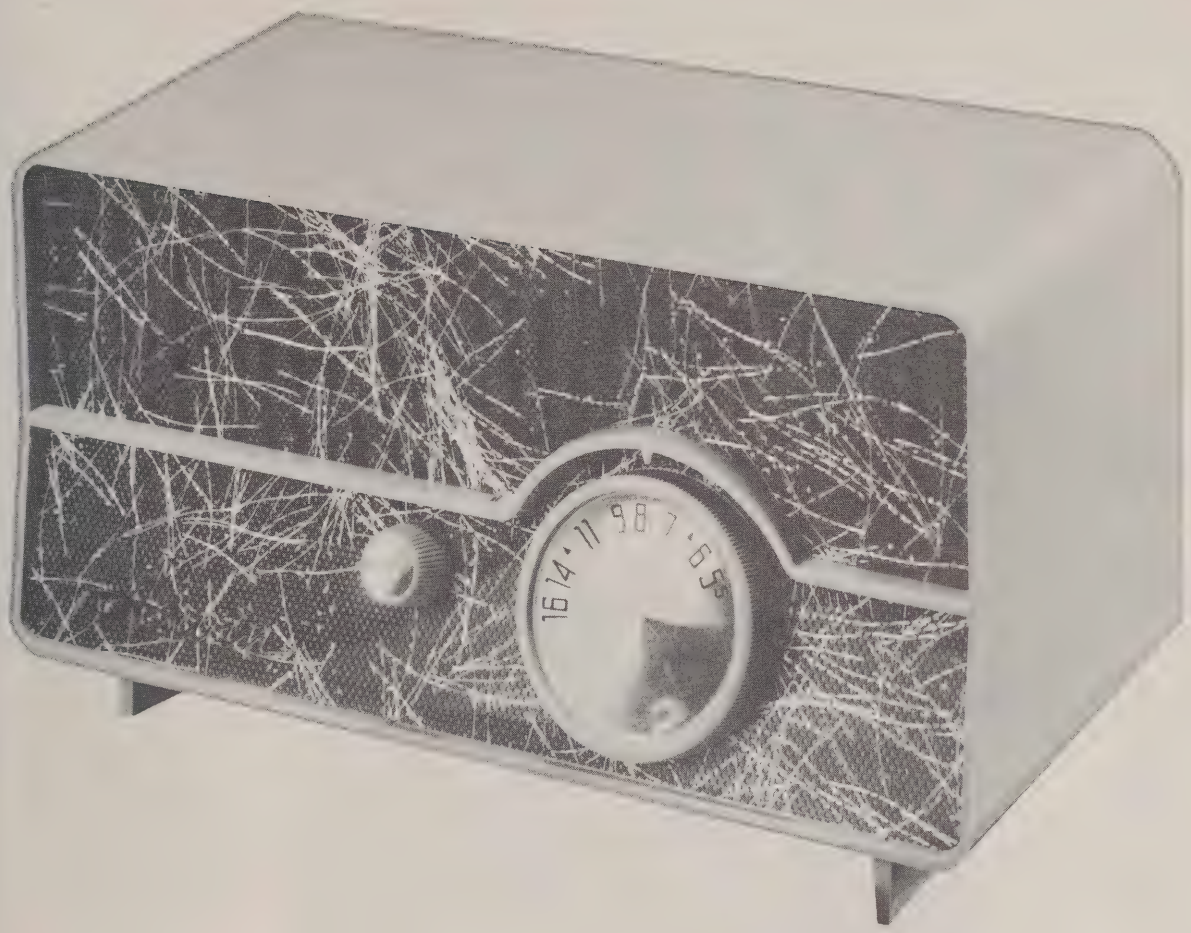

RF AMP
2BN4
MIXER
5CG8
To Junction
L1, L2
470mmf
200K-1meg
VHF ANT.
TERMINALS
200K-1meg
470mmf
30mmf
12mmf
120mmf
28mmf
1-4.5mmf
2-7
2-6
47mmf
1.5-4.5
mmf
5mmf
4700Ω
800
mmf
47mmf
1-4.5
mmf
3900Ω
30mmf
Test
Point
220K
6800Ω
1000Ω
1000
mmf
OSC
5CG8
FINE
TUNING
2mmf
6.8mmf
3mmf
10K
10K
1000Ω
800
mmf
125V
5CG8
2BN4
1000
mmf
To Tuner
Terminal D
To Tuner
Terminal B
To C41
VHF TUNER #25A1156


V2
IF AMP
12BA6
A2
A1
100V
100V
To Pin 5
of V3
To Secondary
of L3
3 4
100Ω
L4
To Junction
R1, C4A
To Junction
R7, C1B

PHOTOFACT* Folder

ARVIN MODELS
2572, 2573 (Ch. 1.42200)

ARVIN MODELS
2572, 2573 (Ch. 1.42200)



ARVIN MODELS
2572, 2573 (Ch. 1.42200)

TRADE NAME	Arvin Models 2572, 2573, (Ch. 1. 42200)
MANUFACTURER	Arvin Industries, Inc., Columbus, Indiana
TYPE SET	AC-DC Operated AM Receiver
TUBES (Five)	Types 12BE6 Converter, 12BA6 IF Amplifier, 12AV6 Det. -AVC-AF Amp., 50C5 Output, 35W4 Rectifier
POWER SUPPLY	110-120 Volts AC-DC — RATING .28Amp. @117 Volts AC (28Watts)
TUNING RANGE—BROADCAST	540-1670KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use isolation transformer, if available. If not, connect a .1MFD capacitor in series with low side of signal generator and B-. Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.05mfd	High side to pin 7 (grid) of 12BE6 (V1). Low side to B-.	455KC (400~ mod)	Tuning gang fully open	Across voice coil	A1, A2, A3, A4,	Adjust for maximum reading.
2.		Loop	1670KC	Tuning gang fully open	Across voice coil	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.		Loop	1400KC	1400KC	Across voice coil	A6	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output. Repeat steps 2 & 3 until no further improvement is noted.

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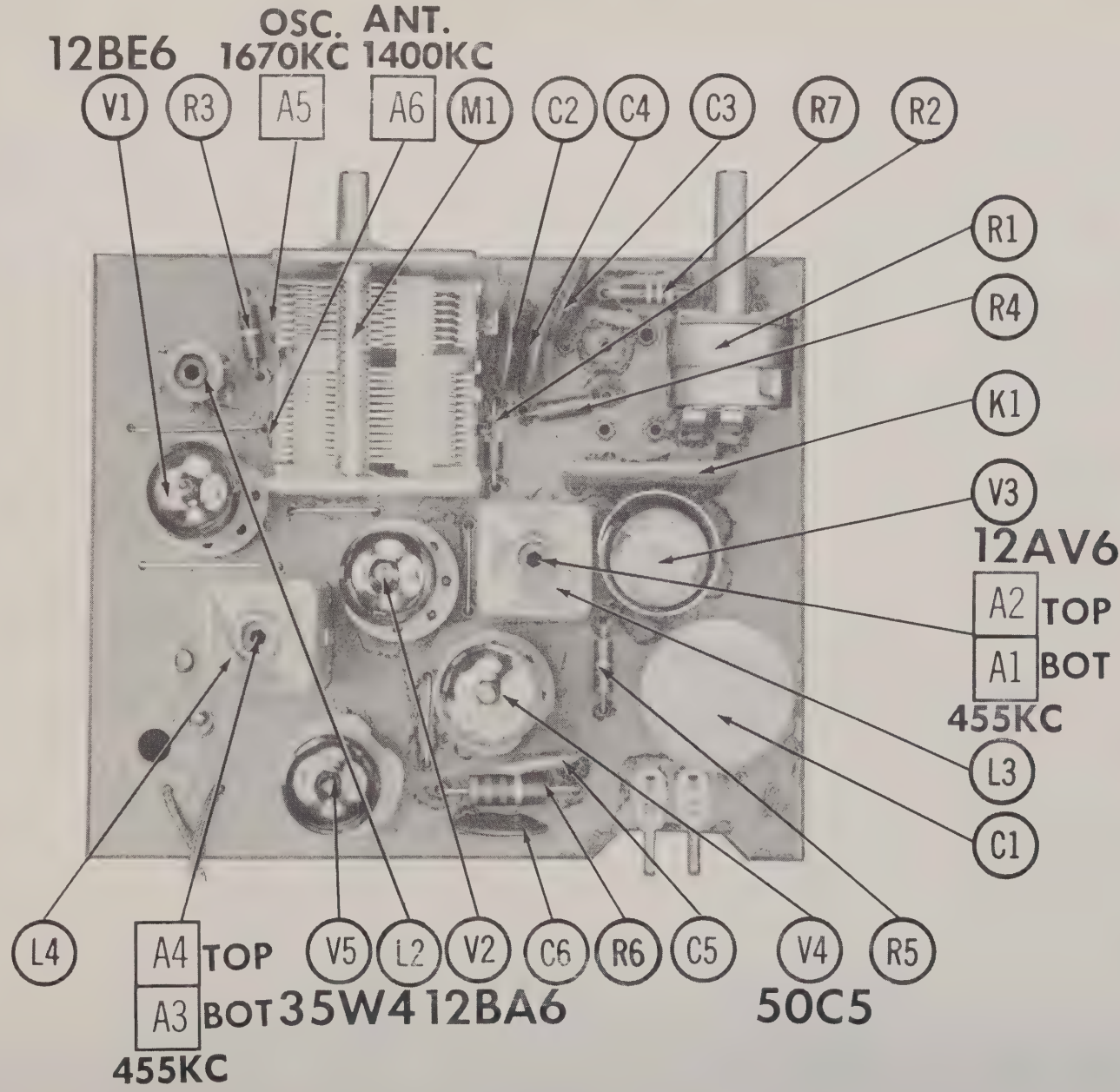


CHASSIS-TOP VIEW

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	Converter	12BE6	
V2	IF Amplifier	12BA6	
V3	Det. -AVC-AF Amp.	12AV6	

ITEM No.	USE	TYPE	NOTES
V4	Output	50C5	
V5	Rectifier	35W4	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA ARVIN PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C 1A	■ 50	150	43672	AFH2-15-05	BBRD5315	PFP213.1	TDLD-8	MTD-301	TVA-3450
B	▲ 30	150							

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA ARVIN PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C2	20000			BPD-02	DD-203	BYB6S2	ED-02		5HK-S2	
C3	20000			BPD-02	DD-203	BYB6S2	ED-02		5HK-S2	
C4	20000			BPD-02	DD-203	BYB6S2	ED-02		5HK-S2	
C5	10000			BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C6	20000			BPD-02	DD-203	BYB6S2	ED-02		5HK-S2	

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA ARVIN PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1	500K	½	43671					Volume and Switch

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	ARVIN PART No.	NOTES
R2	100K			
R3	22K			
R4	2.2meg			

ITEM No.	RATING OHMS	RATING WATT	ARVIN PART No.	NOTES
R5	120Ω			
R6	1200Ω	1		
R7	330K			

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA ARVIN PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T1	2600Ω	3-4Ω	42700-17	Z1101	A-3025	A-3332	24S53	S-12X	

PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	TYPE SIZE	TYPE FIELD	TYPE V. C. IMP.	REPLACEMENT DATA ARVIN PART No.	REPLACEMENT DATA QUAM PART No.	NOTES
SP1	4"	PM	3-4Ω	43096	4A07	

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA ARVIN PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	NOTES
L1	Loop Ant.	44513-1				Includes cabinet back
L2	Osc. Coil	43644-1				
L3	Input IF	44282-1				
L4	Output IF	44282-1				

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	ARVIN PART No.	REPLACEMENT DATA
K1	Audio Coup. Net.	5000 mmf, 5000mmf 220 mmf, 250 mmf, 6.8 meg 470K, 470K	43743-2	Aerovox PA-512 Centralab PC-158 Sprague DT-5

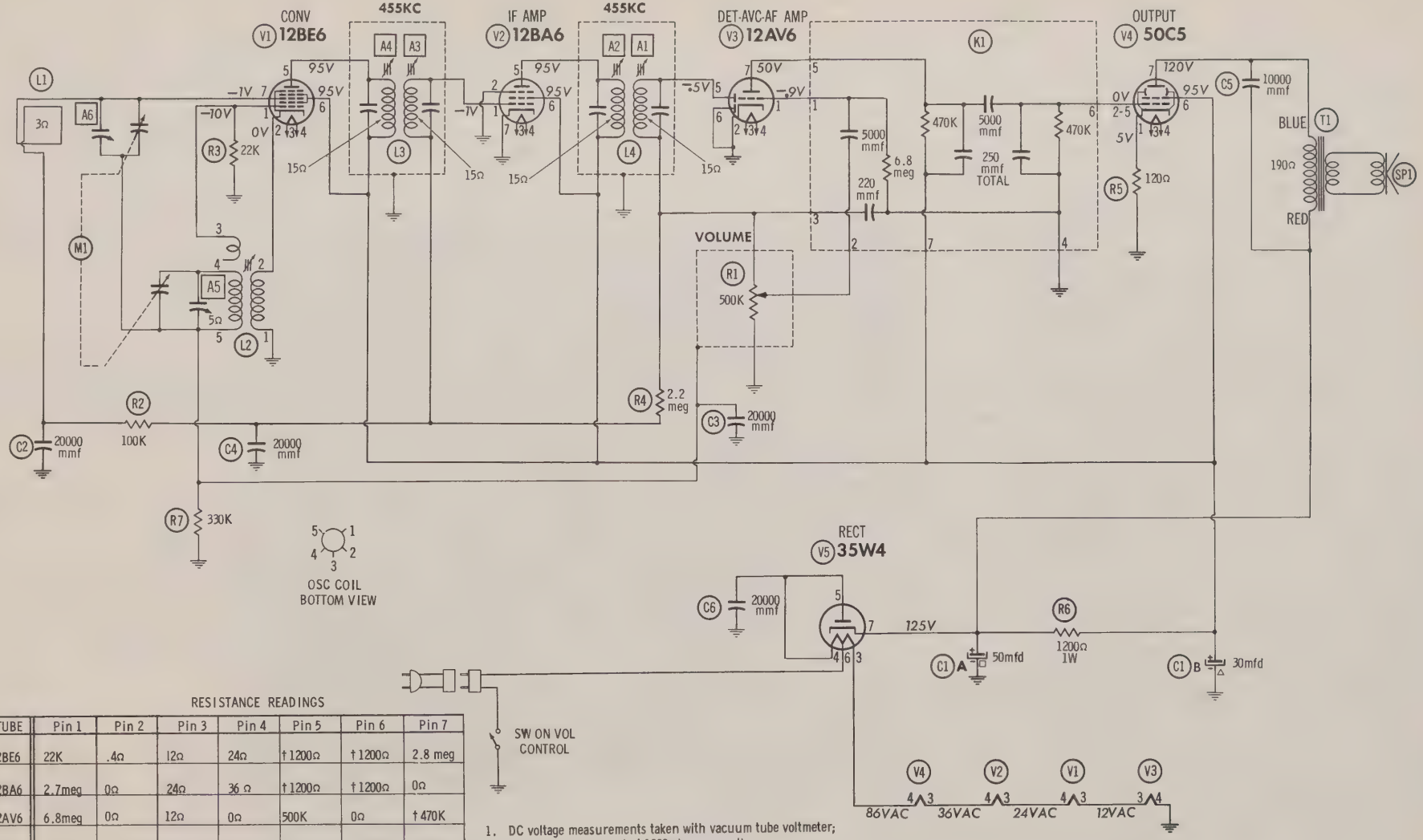
MISCELLANEOUS

ITEM No.	PART NAME	ARVIN PART No.	NOTES
M1	Tuning Cap.	43987	2 Gang

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	44630-73	Tuning, Model 2573, Flame
Knob	44630-35	Tuning, Model 2573, Turquoise
Knob	44520-17	Tuning, Model 2572
Knob	44629-73	On-Off-Volume, Model 2573, Flame
Knob	44629-35	On-Off-Volume, Model 2573, Turquoise
Knob	44521-17	On-Off-Volume, Model 2572
Cabinet	44703-73	Model 2573, Flame
Cabinet	44703-35	Model 2573, Turquoise
Cabinet	44522-17	Model 2572, Ivory
Cabinet	44522-46	Model 2572, Green



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V1	12BE6	22K	.4Ω	12Ω	24Ω	†1200Ω	†1200Ω	2.8 meg
V2	12BA6	2.7meg	0Ω	24Ω	36 Ω	†1200Ω	†1200Ω	0Ω
V3	12AV6	6.8meg	0Ω	12Ω	0Ω	500K	0Ω	†470K
V4	50C5	120Ω	470K	36Ω	86Ω	470K	†1200Ω	†190Ω
V5	35W4	TP	TP	86Ω	110Ω	120Ω	120Ω	20K(min)

† MEASURED FROM PIN 7 OF V5
TP TIE POINT

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to commom negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC

Θ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958

PHOTOFACT* Folder

*TRADE MARK

FIRESTONE MODEL 4-A-175 (Code 364-7-365)

FIRESTONE MODEL 4-A-175 (Code 364-7-365)

PROPERTY OF
DENVER, COLORADO

FIRESTONE MODEL 4-A-175 (Code 364-7-365)

TRADE NAME	Firestone Model 4-A-175 (Code 364-7-365)
SUPPLIER	Firestone Tire & Rubber Co., 1200 Firestone Parkway, Akron, Ohio.
TYPE SET	AC Operated AM Receiver with 4 Speed Automatic Record Changer
TUBES (Five)	Types 12BE6 Converter, 12BA6 IF Amplifier, 12AT6 Det. -AVC-AF Amp., 50C5 Output, 35W4 Rectifier
POWER SUPPLY	105-125 Volts AC-60 Cycles — RATING .28Amp. @117 Volts AC (27Watts without Motor)
TUNING RANGE—BROADCAST	535-1620KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting. Set Tone Control to Treble and Function Switch to "Radio".

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.		Loop	455KC (400~ mod)	Low freq. end of Band.	Across voice coil	A1, A2, A3, A4,	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
2.		Loop	1620KC	Tuning gang fully open	Across voice coil	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.		Loop	1400KC	1400KC	Across voice coil	A6	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output. Rock tuning gang while adjusting.

FOR SERVICE INFORMATION ON RECORD CHANGER-SEE V-M MODEL 1200A- PHOTOFACT SET 353 FOLDER 16

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PARTS LIST AND DESCRIPTIONS

FIRESTONE
MODEL 4-A-175

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	Converter	12BE6	
V2	IF Amplifier	12BA6	
V3	Det.-AVC-AF Amp.	12AT6	
V4	Output	50C5	
V5	Rectifier	35W4	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA FIRESTONE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	40	150	1019		BBRQ44315C	WQ230			R2527*
B	40	150							
C	20	150							
D	20	25							

* Non Catalog Item

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA FIRESTONE PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C2	5000			BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5	
C3	.1	200		P288N-1	DF-104	CUB2P1		GEM-201	2TM-P1	
C4	10000			BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C5	.05	200		P288N-05	DF-503	CUB2S5		GEM-415	2TM-S5	
C6	5000			BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5	
C7	.05	200		P288N-05	DF-503	CUB2S5		GEM-415	2TM-S5	
C8	10000			BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C9	.1	600		P688N-1	DF-104	CUB6P1		GEM-601	6TM-P1	

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA FIRESTONE PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	2meg	½	412A	B-76	A47-2meg-Z	Q13-139	U55	Volume
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	
C	Switch			KB-1	SWE-12	76-1	US-26	
R2A	500K	½	411					Tone
B	Switch							Phono-Radio

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	FIRESTONE PART No.	NOTES
R3	22K			
R4	2.2meg			
R5	150Ω			
R6	47K			
R7	470K			①
R8	2200Ω			

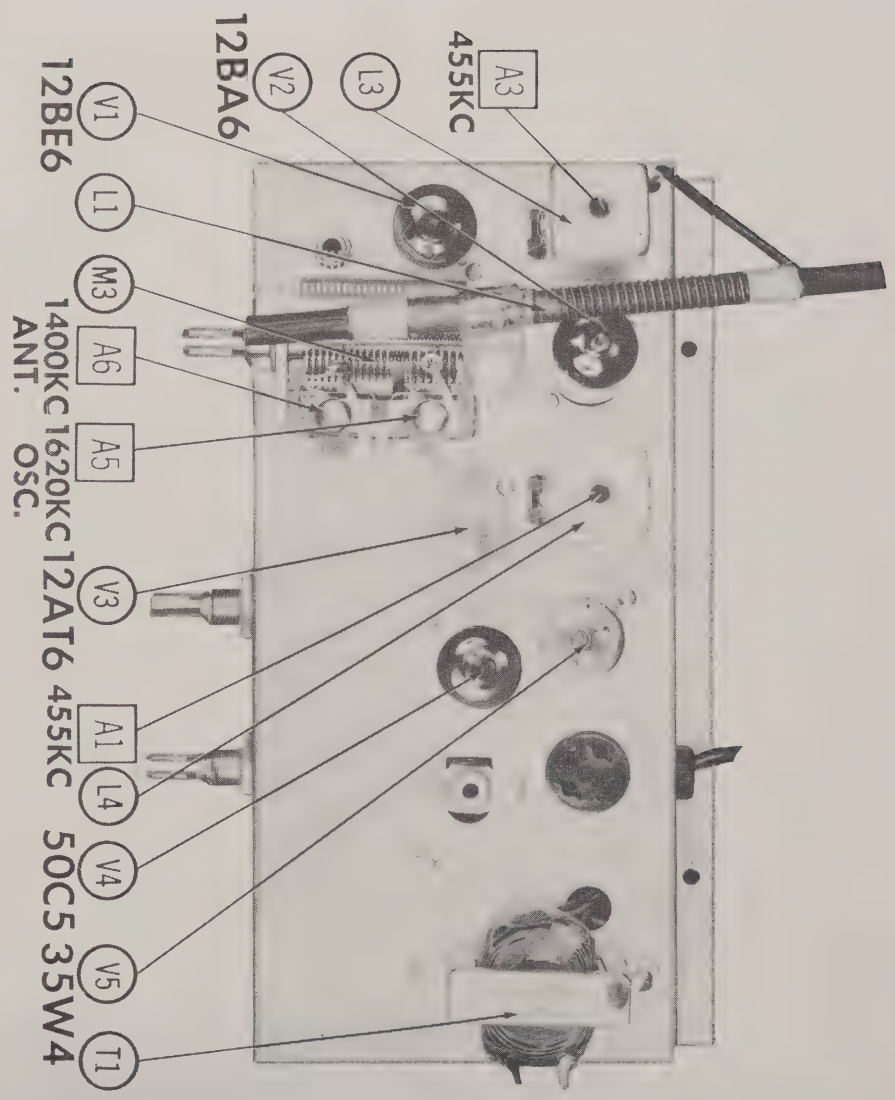
ITEM No.	RATING OHMS	RATING WATT	FIRESTONE PART No.	NOTES
R9	22K			
R10	1000Ω	1		
R11	150Ω			
R12	470Ω	1		
R13	27Ω		542	②
R14	270K			

① Some Versions use 500K in this application
② Some Versions use 30Ω in this application

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.1	REPLACEMENT DATA FIRESTONE PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T1	2400Ω	3-4Ω	1209C						
	Turns Ratio PRI	Turns Ratio SEC. 2							
	5:	1							

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	FIRESTONE PART No.	QUAM PART No.	
SP1	6"	PM	3-4Ω	2627 ①	6A1 ①	①Parallel and Phase
SP2	3½"	PM	16Ω	2633 ①	3A5TZ16 ①	

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		FIRESTONE PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	
L1	Loop Stick	1509					
L2	Osc. Coil	1408A					
L3	Input IF	1405	16-6758	BC-352	12-C1	RF-1	
L4	Output IF	1406A	16-6758*	BC-352 *	12-C2	RF-2 *	

* Connect 100mmf from low side of secondary to pin 2 of V3

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	FIRESTONE PART No.	REPLACEMENT DATA	
K1	Audio Coup. Net.	220mmf, 5000mmf, 250mmf, 5000mmf, 470K, 470K, 6.8meg	827	Aerovox Centralab Cornell-Dubilier Erie Sprague	PA-113-2 PC-151 116TM2 1408-02 DT-2

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA					REMARKS
	FIRESTONE PART No.	ASTATIC PART No.		ELECTRO-VOICE PART No.		
		CARTRIDGE	NEEDLE	CARTRIDGE	MOUNT	
M1	2589	81-TB		56	PT-1	

PHONO NEEDLE

(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

ITEM No.	REPLACEMENT DATA			REMARKS
	FIRESTONE PART No.	JENSEN PART No.	WALCO PART No.	
M2				

MISCELLANEOUS

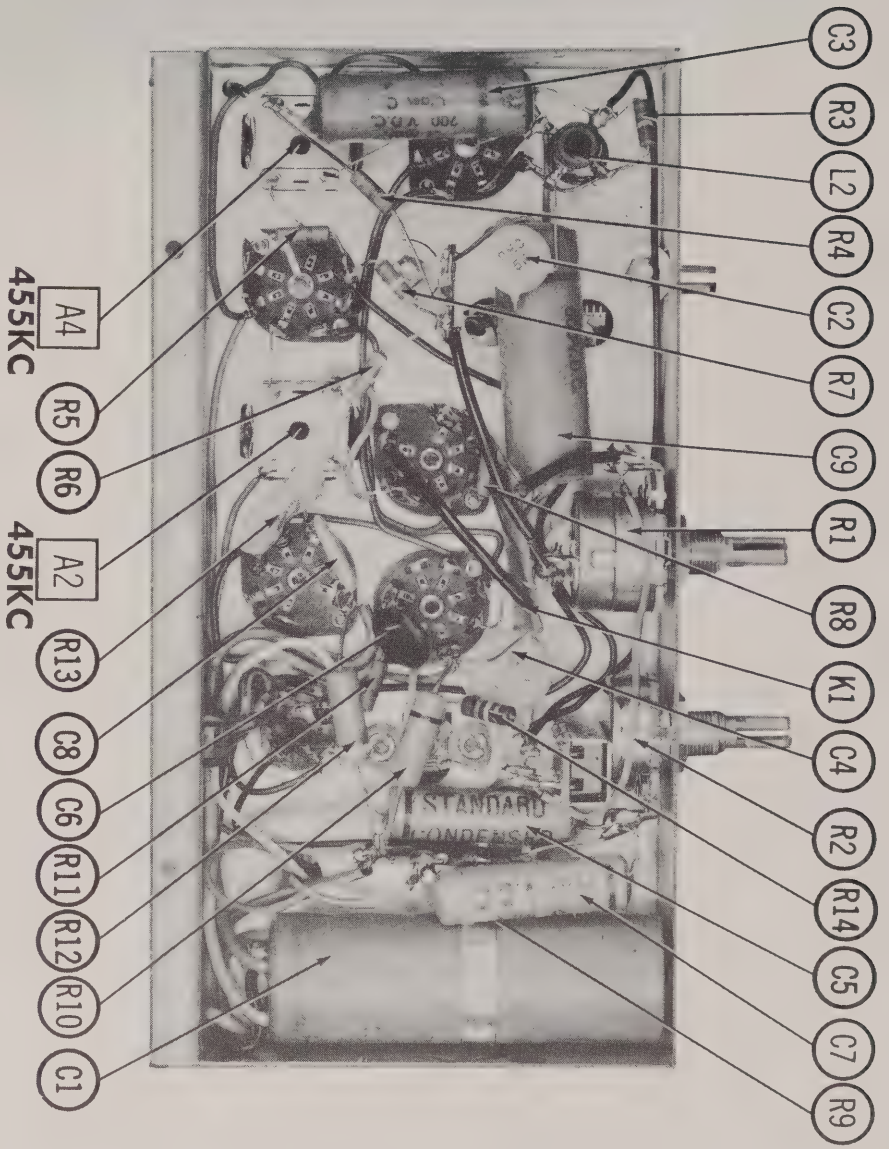
ITEM No.	PART NAME	FIRESTONE PART No.	NOTES
M3	Tuning Cap.	1017	2 Gang (Ant. 18-405mmf, Osc. 5-105mmf)
M4	Motor		Phono

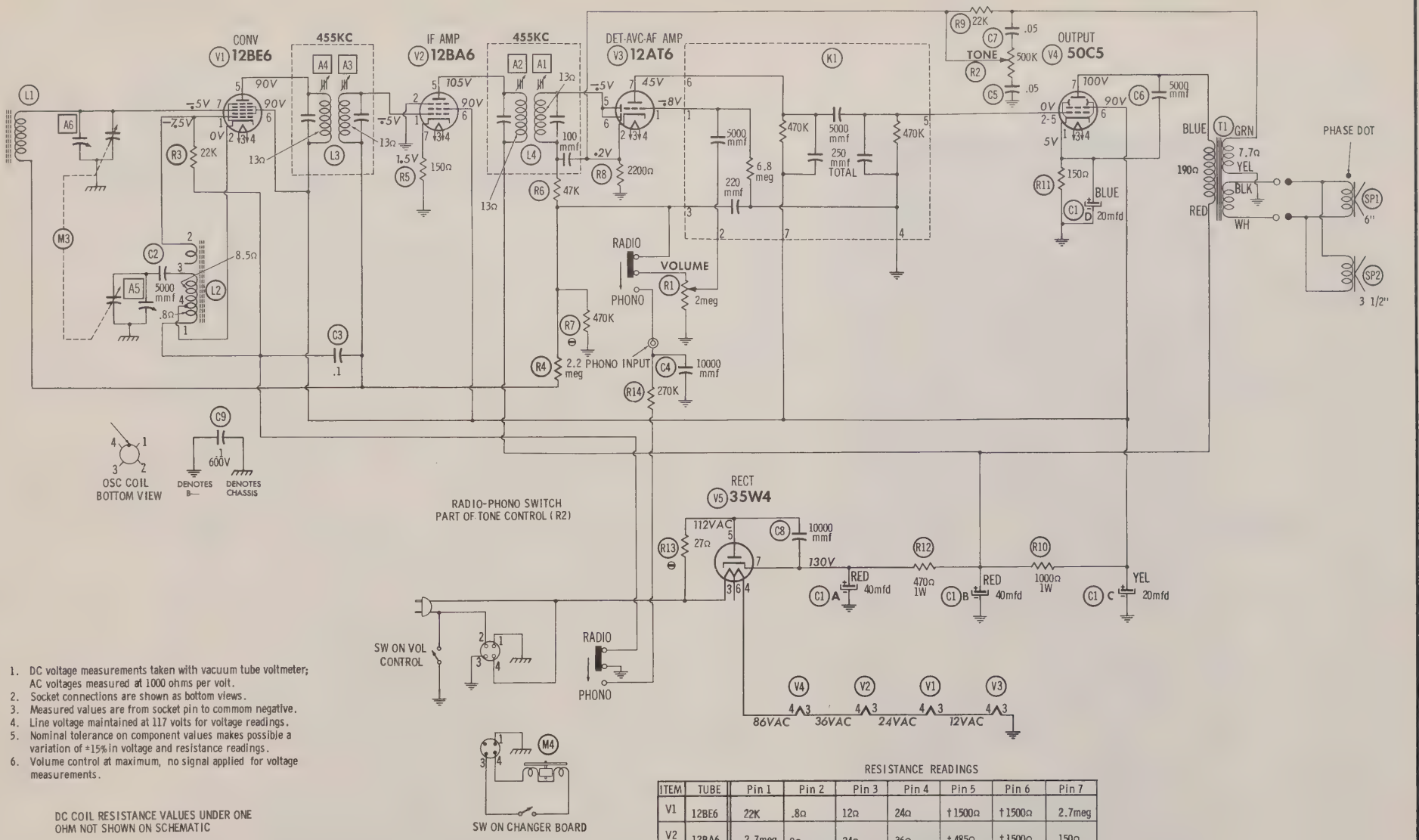
CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	2430B	On-Off-Volume
Knob	2430A	Tone-Radio-Phono
Knob	2430	Tuning
Cabinet	2064A	Portable Carrying Case

CHASSIS—BOTTOM VIEW





1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to commom negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC

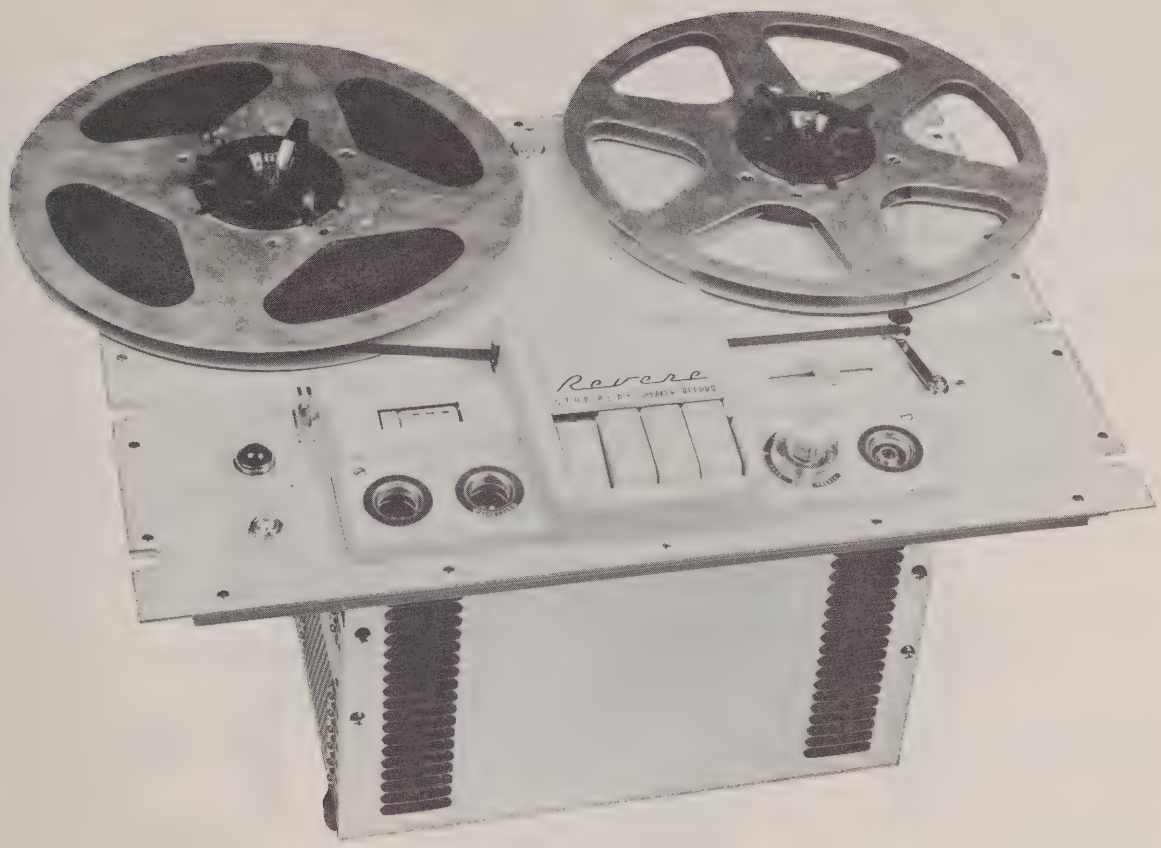
Θ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V1	12BE6	22K	.8Ω	12Ω	24Ω	†1500Ω	†1500Ω	2.7meg
V2	12BA6	2.7meg	0Ω	24Ω	36Ω	†485Ω	†1500Ω	150Ω
V3	12AT6	6.8meg	2200Ω	0Ω	12Ω	510K	510K	†470K
V4	50C5	150Ω	470K	36Ω	86Ω	470K	†1500Ω	†660Ω
V5	35W4	NC	NC	110Ω	86Ω	140Ω	90Ω	20K(Min)

† MEASURED FROM PIN 7 OF V5
NC NO CONNECTION

A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958



REVERE
MODEL T11

REVERE
MODEL T11

GENERAL INFORMATION

The "Revere" Model T-11 Tape Recorder features fingertip operation for Stop, Play, Speaker, and Record modes of operation merely by pressing a key. The "Revere" also incorporates a Rapid Forward-Rewind Lever, this lever is used to skip ahead to any point on the tape or to rewind tape onto the supply reel. This lever can be moved while the recorder is in any function and any previously depressed key will be automatically disengaged.

Two neon recording indicators simplify the recording lever setting. New recordings can be made on previously recorded tape since the erase head is automatically connected when the "Record" key is pressed or the same recording may be played back indefinitely.

This recorder is of the dual-track type, giving two full length recordings on a single reel of recording tape. Any size reel up to 10 1/2" can be used.

The "Revere" T-11 is designed to operate on 60 cycle, 105 to 120 volts, AC supply only.

Manufactured by:

Revere Camera Company
Chicago 16, Illinois

PROPERTY OF
L. F. BLANKENSHIP
3924 M
DENVER, COLORADO

This material compiled and published by

HOWARD W. SAMS & CO., INC., INDIANAPOLIS, INDIANA

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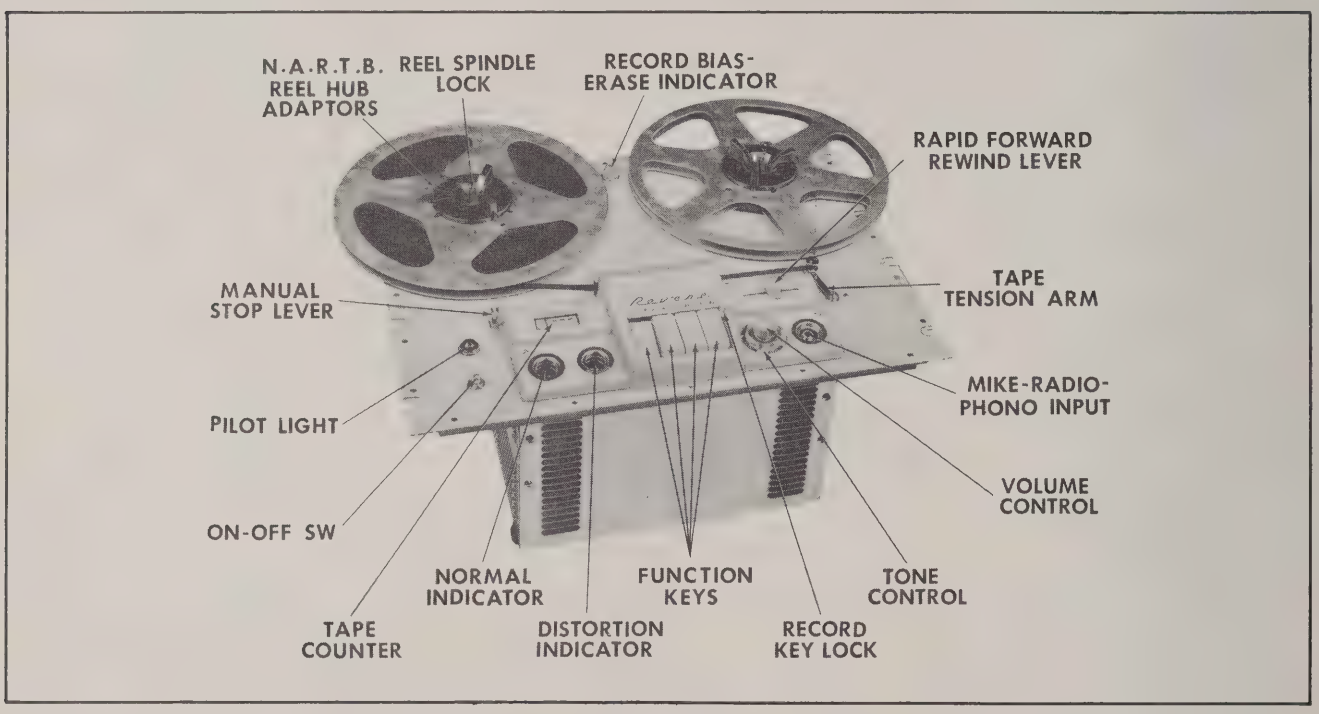


Figure 1

GENERAL DESCRIPTION

The Revere Model T-11 Tape Recorder features simplified fingertip operation for "Stop", "Play", "Speaker", and "Record". This unit is designed to record two tracks of material on standard width recording tape, which doubles the playing time of a reel of tape with no loss of frequency response or quality. Recordings can be made from a microphone, phonograph, AM-FM tuner, or from a television receiver. Recordings can be played through an existing home music system or through an efficient speaker by connecting it to the "Monitor Output" jack.

CAUTION: Do not use on direct current. Check name plate at rear of machine for proper current and voltage.

SPECIFICATIONS

Frequency Response — 40 to 16,000 cps, ± 3db.

Tape Speed — 7 1/2 ips.

Signal To Noise Ratio — greater than 50 db.

Wow and Flutter — less than 0.2%.

Over-All Harmonic Distortion — 0.65%.

Over-All Intermodulation Distortion — less than 2.5%.

Size — top panel 19" x 14", depth 9" over-all.

Power Requirements — 105 to 120 volts, 60 cycles. Power Consumption — 120 watts.

Weight of Recorder — 34 lbs.

Reel Size — up to 10 1/2".

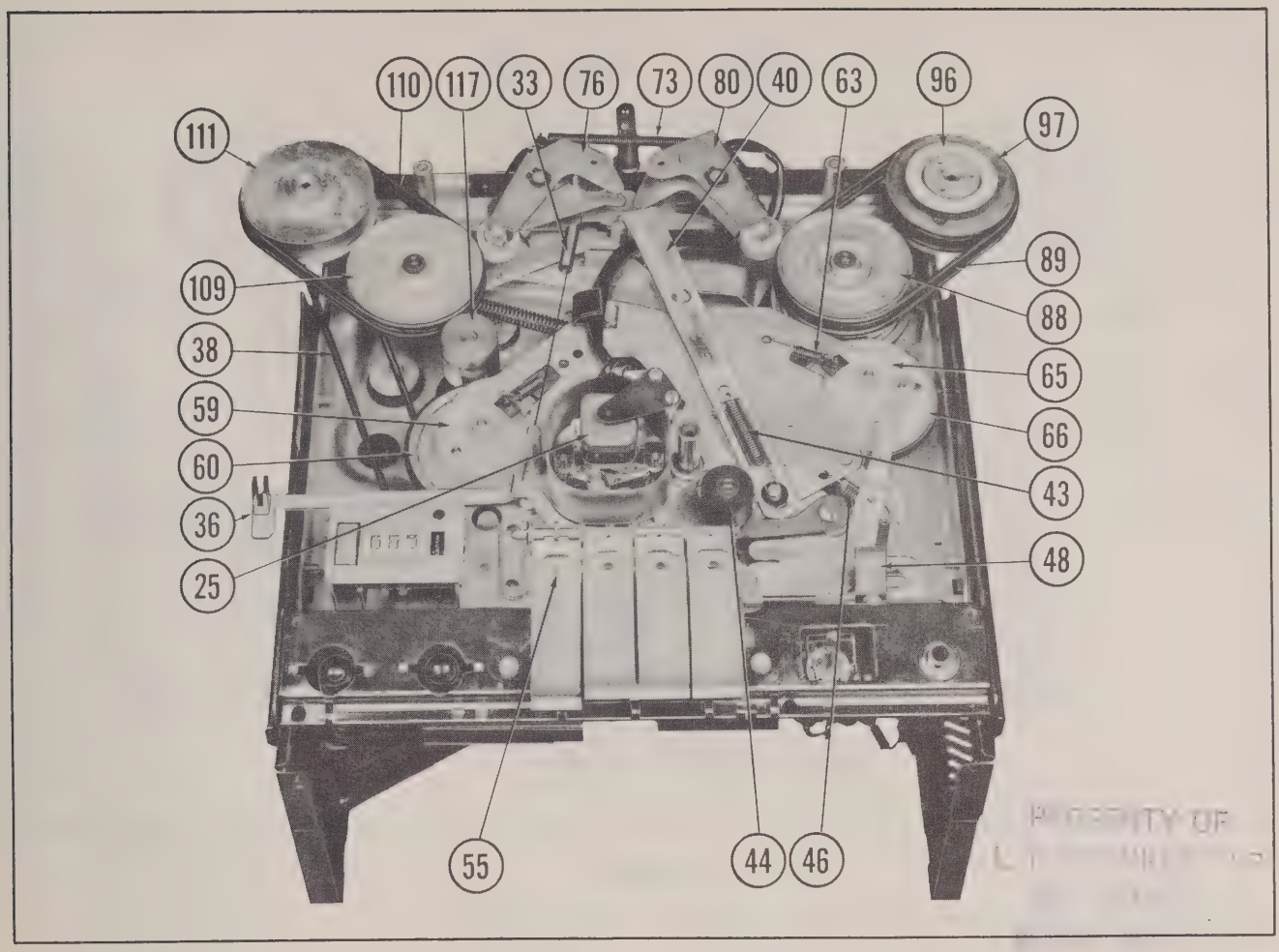


Figure 2

FUNCTIONS OF CONTROLS, INDICATORS, & SWITCHES

On-Off Switch

Moving this switch to the "On" position allows power to be supplied to the entire recorder.

Volume Control

This control regulates the volume when recording, and also when playing back through the Monitor Output. When playing through an external system connected from the Pre-amp Output jack, this control has no effect, and volume must be controlled at the external system.

Tone Control

This control is designed to give tonal extremes, and can be varied to produce a blend of tone suitable to any type of program. Whenever recordings are played back through an external system, this control should be placed in the "Hi-Fi" sector and then the tone control on the external system adjusted for the desired tonal blend. The tone control is switched out of the circuit when recording.

Function Keys

All electrical and mechanical functions for Play and Record operations are performed by the function keys. Also, for convenience and protection, the mechanism is returned to the "Stop" position whenever the "Rapid-Forward Rewind Lever" is actuated.

Rapid Forward-Rewind Lever

This lever is used to skip ahead to any point on the tape or to rewind tape onto the supply reel. By moving this lever back and forth, the tape can be inched along in either direction to find an exact point on the tape. This lever can be moved while the recorder is in any function and any previously depressed key will be automatically disengaged.

Record Key Lock

This is a safety feature which locks the "Record" key to prevent accidental erasure. To actuate the "Record" key, the "Record Key lock" must be moved to the right before depressing the "Record" key.

Record Level Indicators

Adjust the volume so that the "Normal" indicator flashes and the "Distorted" indicator is on the verge of flashing on the loudest peaks. The indicators also light in "Play" and may be used to show relative playback

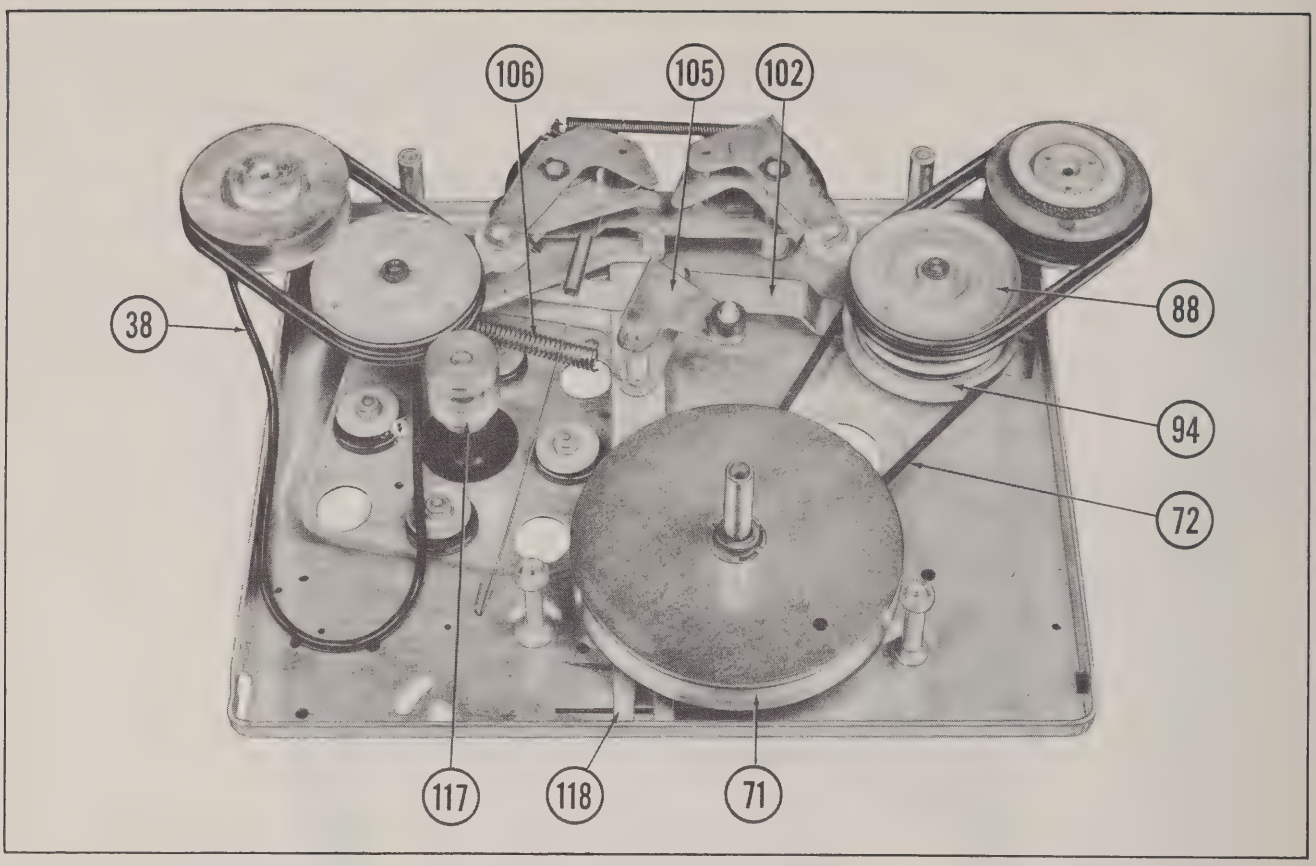


Figure 3

volume, but the "Normal" and "Distorted" markings apply only when recording.

Manual Stop Lever

This lever can be used to instantly stop the tape while in either "Play" or "Record" position. This enables precise setting of the record level before starting a recording, and also allows editing of unwanted breaks or commercials. In playback, this lever is useful for transcribing and editing.

Index Counter

Set the counter to zero after a reel of tape has been threaded on the recorder. After each selection is recorded, note the counter readings for future reference. In this way, the counter can be used to locate a pre-recorded selection on the tape.

Record Bias-Erase Indicator

The Bias-Erase indicator lamp, located between tape reels, lights showing that the oscillator is properly functioning.

CONNECTING THE T-11 TO HIGH FIDELITY SYSTEMS

1. Connect the recorder's "Pre-Amp. Output" to the Hi-Fi system's Pre-Amp. Input (Usually marked Tape, TV, or Auxiliary). Use standard phone plug and shielded cable. Shield must be soldered to the body terminal of each plug. The T-11 Pre-Amp. Output operates at a level of one volt into impedances of 25,000 ohms to two megohms.

2. Connect the recorder's Radio-Phono Input to the Hi-Fi System's Pre-Amplifier Output (a special output for tape recording may be provided, if not, make connection across power amplifier input). Use standard phone plug with shielded wire. Radio-Phono Input is 1 megohm, operates on 0.05-10 volts (1 volt nominal) (-24VU to +22VU).

3. With the straight power cord, connect the recorder to an outlet supplying voltage and frequency as specified on the rear name plate. Switch controlled outlets of most systems can be used, in which case the whole system must be switched on to operate the recorder.

OPERATING INSTRUCTIONS

Threading The Tape

1. Place full reel of tape (glossy side out, i.e. "A" wind) on left reel lock assembly and empty reel on right reel lock assembly. If reels have the large N.A.R.T.B. center hole, place the N.A.R.T.B. reel hub adaptors (1) on the reel lock assemblies (2), lift and turn the reel locks (5) until splines lock between the tiny raised dots on the hubs. Lock the large reels in place by turning the wings on the N.A.R.T.B. reel hub

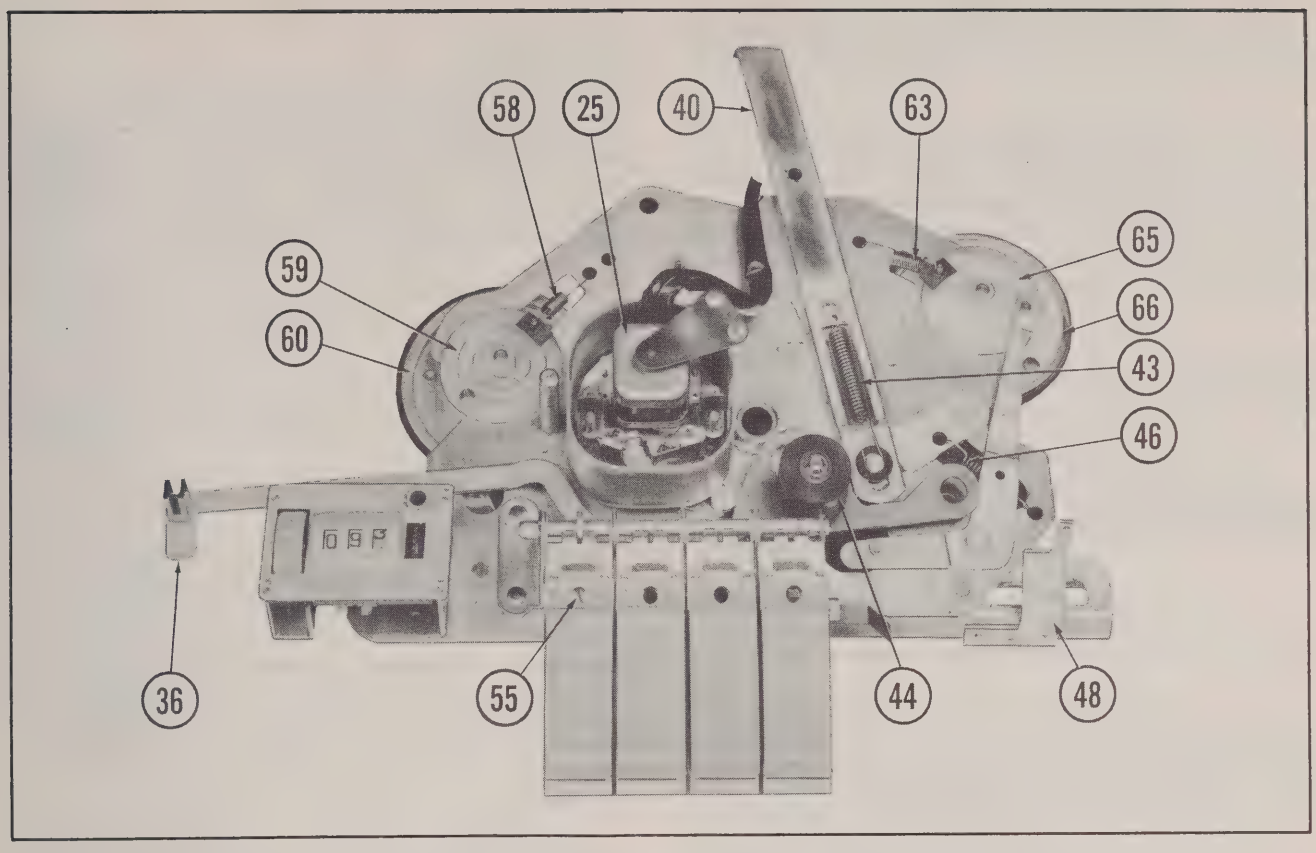


Figure 4

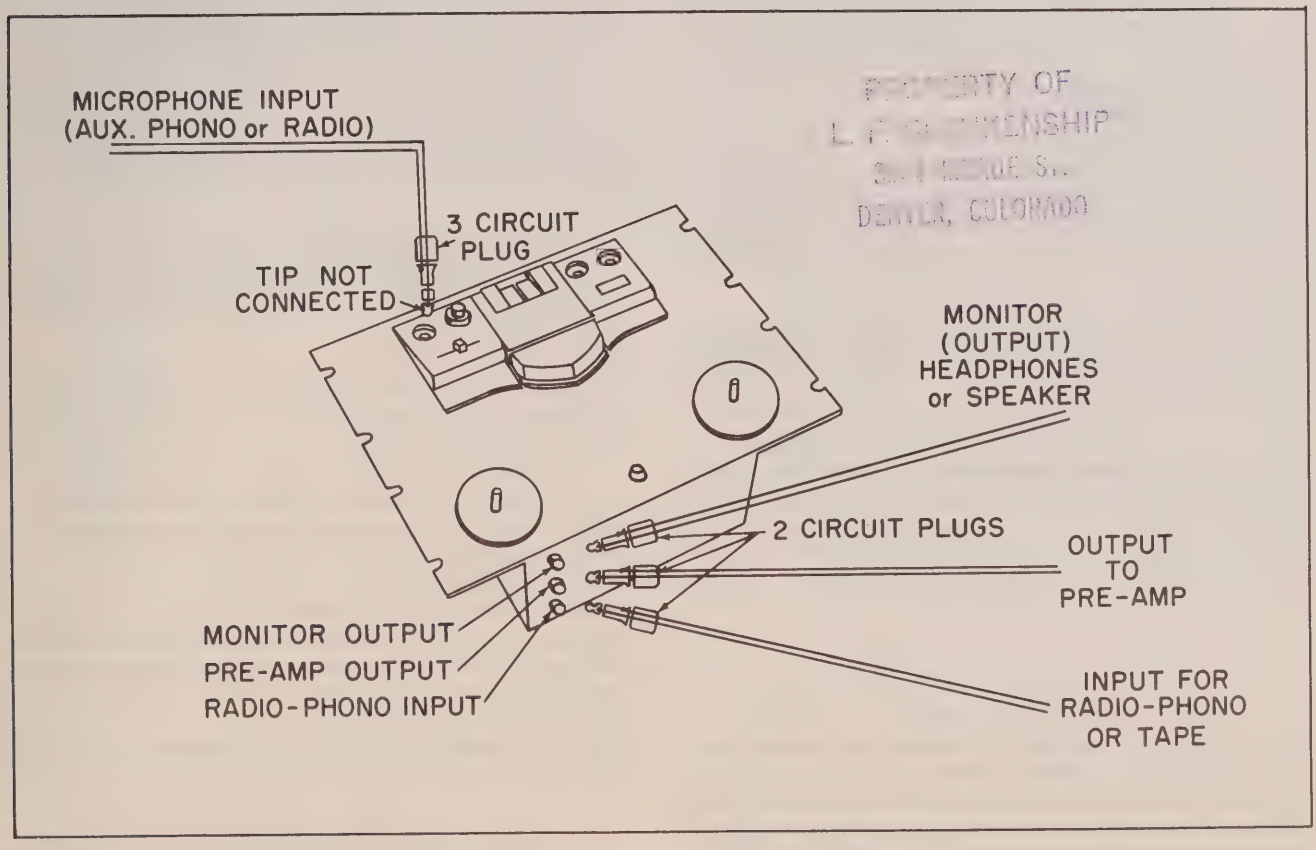


Figure 5. Input And Output Connections.

adaptors clockwise. Lock small reels by lifting reel locks (5) and turning the splines half way between the reel slots.

2. Unwind about 20" of tape from the reel. Hold a section of the tape straight with both hands and insert the tape in the tape slot making sure the dull coated side of the tape faces the rear of the recorder. Feed the tape around the tape tension arm (12), as shown in Figure 1, and into one of the slots in the empty reel. Rotate the reel counter-clockwise until the tape is secured to the reel.

How To Make A Recording From A Hi-Fi System

1. Play a program or phonograph record through the Hi-Fi system. Set its tone controls mid-way between treble and bass, switch off any loudness control, and adjust its volume control for comfortable listening.

2. Release record key lock by moving it to the right. Depress the record key while holding back the manual stop lever (36) with the left hand.

3. Set the recording level by adjusting the recorder's volume control so that the "Normal" indicator flashes and the "Distorted" indicator is on the verge of flashing on the loudest peaks. Release manual stop lever (36) to instantly begin recording.

NOTE: In most Hi-Fi systems using a separate control Pre-Amplifier and Power Amplifier, the Power Amplifier has a screwdriver adjustment labeled "Input Level". Reduce its setting, if the recorder volume control must be turned fully on to set the proper recording level, or if the Hi-Fi system is too loud at that point.

To Play Back Recordings

1. Move rewind knob (11) to the left (it automatically releases the record key and resets the record key lock) and wind tape back to the original counter setting. Return the rewind knob (11) to the center position to stop the reels.

2. Set the recorder "Tone Control" so that the red dot is in the Hi-Fi sector, and turn the recorder's "Volume Control" down.

3. Turn the selector switch of the Hi-Fi system to the Input Channel connected to the recorder, and press the "Play Key". Adjust the volume and tone controls of the Hi-Fi system for desired listening level.

To Record From A Microphone

1. Insert microphone plug firmly into the "Microphone Input".

2. Set the counter (37), slide the record key lock to the right, and depress the record key. Adjust the "Volume Control" so that the "Normal" indicator flashes while speaking into the microphone in a normal tone of voice. To monitor recording, plug headphones (any type) into "Monitor Output Jack", and press "Speaker" key.

To Play Recordings Through The T-11 Amplifier

The T-11 Recorder, without additional amplifiers, can be a "building block" for more elaborate future installations, and yet give gratifying performance in the meantime. The "Monitor Output Jack" can supply 2 1/2 watts at 3-4 ohms, which is sufficient for ordinary listening when an efficient speaker is used.

1. Connect an external speaker equipped with a standard phone plug into the "Monitor Output Jack".

2. Depress the "Play" and "Speaker" keys and adjust the "Volume" and "Tone" controls for desired listening level.

To Record Directly From AM-FM Tuner Or Phonograph

1. Connect the Tuner or Phonograph into the "Radio-Phono Input" on the rear panel, or to the "Microphone-Phono Input" on the front panel (both inputs are in parallel). To do this, attach a standard phone plug to a shielded cable and attach to the Tuner or Pnonograph. The shield must be soldered to the body terminal of the plug. Low level magnetic cartridges such as G.E. or Pickering must operate through their preamplifiers.

2. Connect the speaker voice coil terminals to the "Monitor Output Jack" on the rear panel. To do this, attach a standard phone plug using #18 lamp cord to the speaker, or use the gray attachment cord which is furnished with the unit. Polarity is not important.

3. Depress the speaker key and turn up the recorder's volume control to hear the program.

4. Thread the recorder and proceed with the recording as previously described under "How To Make A Recording From A Hi-Fi System". Press speaker key again after pressing record key to monitor recordings.

5. To play recording, rewind the tape to the original counter setting. Press play key and adjust recorder's "Volume" and "Tone" controls for desired listening level.

Twin Track Recording

1. Revere Recorders are designed so that each reel of tape holds two full length recordings, one on each half of the dull side of the tape.

2. After the first track has been recorded, a second recording can be made on the same tape by removing the reels from the recorder, turning them over, and placing on opposite spindles.

3. Thread the tape and proceed with the recording.

4. After the second track has been recorded, the first track is ready to be played, without rewinding, by changing reels as described in step No. 2.

Fast Forward

1. Any portion of a recording may be skipped, or any selection may be located in a few seconds by moving the high speed knob (11) to the right. A few seconds of "Fast Forward" is equivalent to several minutes of playing time.

2. By moving knob (11) back and forth the tape can be inched along to an exact point.

3. After reaching the desired portion of the tape, move the high speed knob (11) to the middle or neutral position to stop all tape movement.

NOTE: The fast forward or rewind mechanism can be engaged at any time while the recorder is in any function, and any previously depressed keys will automatically disengage.

DISASSEMBLY INSTRUCTIONS

PROPERTY OF

To Remove Top Plate Assembly

1. Pull off "Volume" and "Tone" control knobs.

2. Remove screw at rear of high speed knob (11).

3. Remove five screws (8) from the top plate.

4. Turn until loose, 2 screws, one above the "Microphone Jack" and the other above the "Normal" indicator.

5. Remove reel spindles by removing their 3-screws.

6. Depress the record key and pry the record key lock to the left and remove top plate.

To Remove Mechanism From Amplifier

1. Unplug the play-record-erase head cable plug and motor plug. The motor plug is located on the bottom of the chassis near the solenoid.

2. Remove four screws, two on each perforated side plate and carefully lift out mechanism.

After servicing the unit, inspect visually for signs of damage and wear, and make certain all parts are in their proper place and properly adjusted. Reassemble by reversing the procedure outlined above being careful that the motor and head leads will be clear of all moving parts.

PRELIMINARY TESTS — REPAIR PROCEDURE

TEST PROCEDURE: FAILURE TO PASS ANY OF THESE TESTS INDICATES A FAULT THAT SHOULD BE REMEDIED.

1. Remove front and rear plastic head covers by pulling up. Clean head, tape guides, and capstan with alcohol.

2. Press "Stop" key. Place high speed knob (11) in the middle or neutral position. Place on-off switch in the "On" position.

3. Thread tape on recorder. Brakes should be engaged. Pull required on reel should not distort the tape and should offer sufficient drag to prevent spilling of tape. Drop tape into threading slot. Attach free end of tape to take-up reel (right). Reel should rotate freely counter-clockwise and drag when rotated clockwise.

4. Press "Play" key, "Speaker" key should also depress and both should latch down. "Stop" key should release. Reel spindle brakes should release. Solenoid should energize. Felt pressure pads should press square against tape and cover shiny pole face area under tape. Pressure roller (44) should contact capstan, and tape should move past play-record-erase head (25) at playing speed. Take-up reel should wind up tape as it passes the capstan. The counter should tally each revolution of the supply reel.

5. Move high speed knob (11) to the right. Check to see that moving the knob releases "Play" and "Speaker" keys and latches down "Stop" key. Pressure roller and pressure pads should be released. Tape should move forward at greatly increased speed.

6. Return high speed knob (11) to the middle or neutral position. Solenoid and pressure pads should remain disengaged. "Stop" key should remain down. There should be no spilling of tape. If tape spills, see "Stop Key Adjustment".

7. Move "Record Key Lock" to right. Press "Record" key. Make a microphone recording. Adjust "Volume" control while speaking so that "Normal" indicator flashes and "Distorted" indicator does not.

8. Press "Speaker" key. Speaker should be live. Press "Record" key again. "Speaker" key should release.

9. Move high speed knob (11) to the left. "Record" key should release.

10. Play back recording. Check volume, tone, and overall quality.

11. Rewind tape and re-record over your previous recording. All trace of previous recording should be erased on the portion of the tape re-recorded. Check irregularities in playing speed (Wow and Flutter). Check the action of the instant stop arm (36). Tape should stop instantly. Upon releasing, tape should start instantly and not spill off reels.

MECHANICAL ADJUSTMENTS

Stop Key Adjustment

In switching from "Play" or "Record" to "Fast Forward" or "Rewind", if the solenoid does not release pressure roller (44), or if tape is spilled when returning to the neutral position from "Fast Forward" or "Rewind" by the solenoid re-engaging, check the stop key adjustment as follows:

1. Turn stop key adjusting screw (Item 55 Figure 2) a few turns counter-clockwise, then press "Play" key. Move high speed knob (11) to either "Fast Forward" or "Rewind". Turn the stop key adjusting screw (55) clockwise until the electrical function switch (sawtooth latch bar) just latches to the right. Turn an additional 1/4 turn clockwise. If screw is turned too far clockwise the high speed knob (11) will bind.

2. Check "Stop" key micro-switch. Switch is located under the "Stop" key and is encased in fiber.

NOTE: It may be necessary to adjust "Stop" key when replacing amplifier assembly.

Replacing Sound Head

1. After removing head spring retainer (22) lift head and brass alignment plate from head shield cup. Unplug head cable plug.

2. Pry head from brass alignment plate. Note position of locating pins.

3. Place the head over the pins in the aligning plate in the proper location and press into place.

4. Replace alignment plate into head cup. The two brass pivot studs should engage the two holes in the plate. Replace head retaining spring.

5. Align head azimuth as described in electrical adjustments.

ELECTRICAL ADJUSTMENTS

Play-Record-Erase Head Azimuth Adjustment

It is very important that the head be lined up perfectly with the tape. If it is not, low output and loss of high frequencies will result. There is one adjustment to be made, which is as follows:

1. For alignment of the play-record-erase head a 1 mil alignment tape should be used. Thread tape on unit and set controls in "Play" position. Adjust head for maximum playback sensitivity by turning adjustment screw (Item 26 on Exploded View). In lieu of alignment tape, play a previously recorded tape and adjust head for maximum treble tone. After adjustment is made, cement alignment screw (26) to lock adjustment.

Bias Adjustment

The bias is measured by placing a 100 ohm resistor in series with the record element and measuring the voltage across this resistor with a meter capable of accurately reading 0.15 Volts at a frequency of 70KC. Adjustment is made by means of the screwdriver adjustment on oscillator coil (L2). This screw is located beneath the name plate on the rear panel. The above value of bias will produce optimum results on most types of standard tape presently available.

High Frequency Equalization Adjustment

Incorporated in the pre-amplifier circuit is a core tuned peaking coil (L1) that adjusts the high frequency end point to compensate for long term head wear. This equalization is effective in play back only since headwear has a lesser effect on the recording process. The screwdriver adjustment is located on the chassis between the large electrolytic and the 12AX7 tube. Adjustment is made for flat recorded-played-back response from 10 to 16KC. Adjustment has been made at the factory for optimum performance and should not require any readjustment for at least 500 hours of use. Before adjustment is attempted, the head should be carefully cleaned with alcohol.

To make adjustment, record 10KC and 16KC signals. Upon playing back these signals, adjust the peaking coil core until the amplitude of the 16KC is equal to the 10KC. Measure the signals at the pre-amplifier output.

Hum Balancing Adjustments

Both record (R2) and playback (R3) hum balancing controls are provided to assure maximum signal to noise ratio. These controls have been factory adjusted for optimum performance. If adjustment is required, screwdriver controls are located on the chassis near the power transformer. First try reversing the power plug for minimum hum. Then with "Stop" and "Speaker" keys depressed, adjust record hum control (R2) for minimum hum at "Monitor Amp. Output", volume set at maximum. Next, press "Play" key and adjust the forward control (R3) for minimum hum at either the "Monitor" or "Pre-Amp. Output".

CLEANING

The majority of defects, other than wear or breakage, can be traced to dirty surfaces. The play-record-erase head (25), capstan, and pressure roller (44) are subject to an accumulation of tape coating residue, which is worn off the tape as it passes these parts. This accumulation should be periodically removed since it will cause faint recording and poor playback. Wipe off the above surfaces carefully with a clean cloth. If dirt is caked or hard and will not come off with a dry cloth, dampen cloth slightly with alcohol.

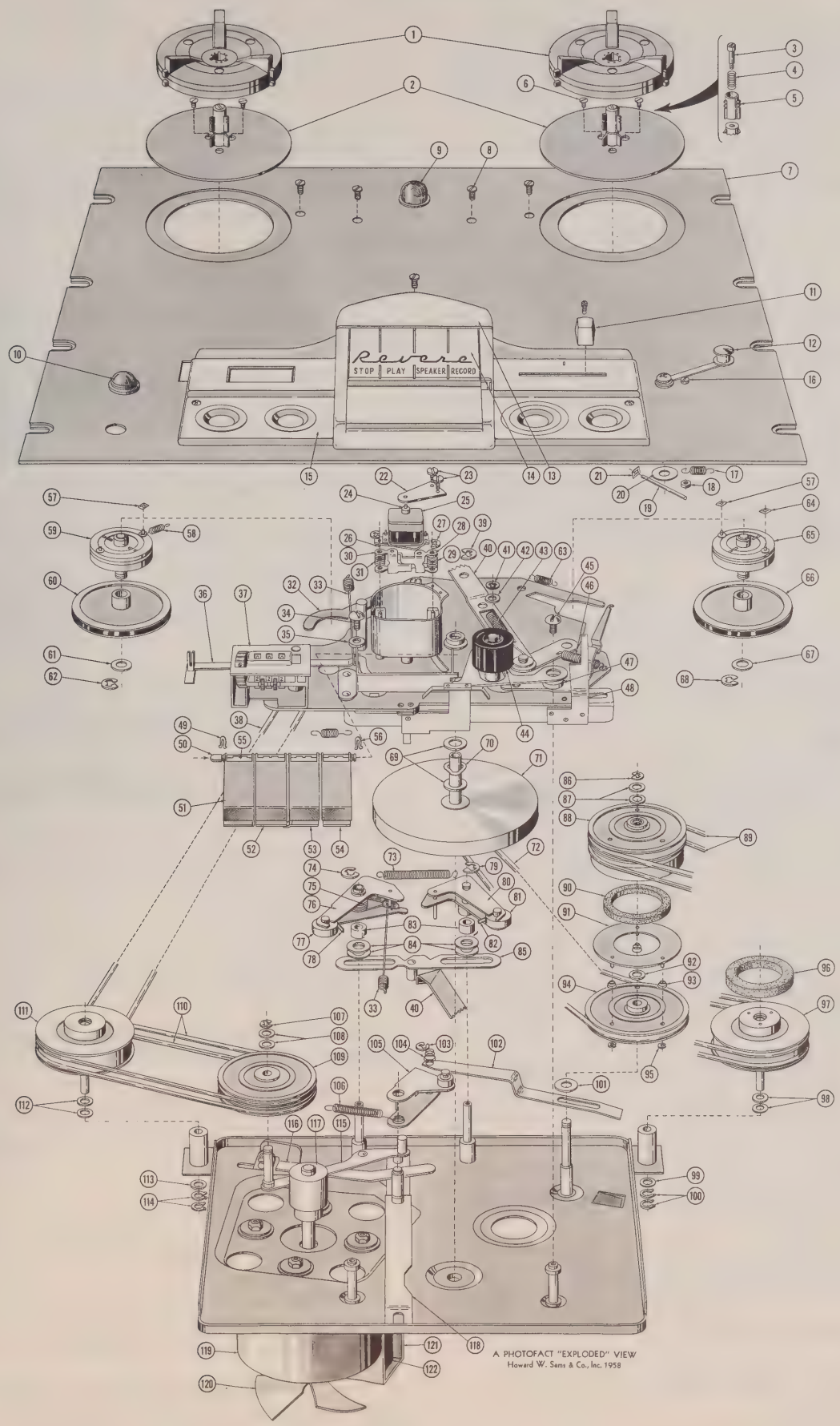


Figure 6. Exploded View Of Tape Transport Mechanism.

LUBRICATION

All moving parts in this recorder were permanently lubricated at time of manufacture. Under normal use further lubrication should not be required. In heavy-duty service, the following parts should be lubricated once a year with a drop of #10 motor oil:

1. The top and bottom motor bearings.

2. The top and bottom flywheel (71) bearings.

3. Pressure roller (44) bearing.

4. All idler and drive wheel bearings.

5. The reel spindle bearings.

The basic rule is — do not over lubricate. Oil must be kept off all rubber idlers, belts, and periphery of flywheel and off parts that might transfer oil to them. Always wipe excess lubricant from parts that have been lubricated.

MECHANICAL TROUBLES

No Tape Drive In Play Or Record

1. Pressure roller spring (43) disconnected or broken, resulting in pressure roller (44) not being held in contact with the capstan. Connect or replace spring (43).

2. Motor pulley (117) loose on motor shaft.

3. Idler tension spring (58) disconnected or broken, thereby not holding idler wheel (60) in contact with motor pulley (117) and flywheel (71). Connect or replace spring (58).

4. Take-up belt (72) stretched or not properly connected.

5. Check for oil on motor pulley (117), idler wheel (60), flywheel (71), and take-up belt (72). If necessary, clean with alcohol.

No Fast Forward (Check Fast Forward With Nearly Full Take-up Reel)

1. Check high speed lever (48) to see if it moves approximately 7/8" to the right. This should allow idler wheel (66) to be pulled by its spring (63) into contact with high speed cup (88) and flywheel (71). A weak spring (63), binding slide, or bent arm may prevent this.

2. Idler wheel (60) must be free to slide. It may be necessary to increase tension on idler spring (58).

3. Check for oil on drive surfaces. If necessary, clean with alcohol.

4. Check that pressure pads are disengaged.

No Rewind, OK In "Play" And "Fast Forward"

1. High speed lever (48) should move approximately 7/8" to the left. Rubber drive belts (110) should contact motor pulley (117).

2. Check take-up spindle for free rotation. Brakes should be disengaged. Idler wheel (66) should not be driving high speed cup (88).

3. Spring (106) disconnected or broken. Replace spring (106).

Tape Overruns Or Spills When Changing Functions

1. Brake arm spring (73) disconnected or broken. Connect or replace spring (73).

2. Brake roller spring (78) or (82) broken. Replace defective spring.

3. Clutch felt (96) may be worn — replace.

4. Grease or oil on belts (110 or 89) — clean with alcohol.

Speed Irregularities (Wow and Flutter)

Check for binding in the following:

1. Flywheel bearings. Check by moving idler wheels (60) and (66) away from the flywheel and rotate the capstan by hand. A small drag is normally obtained from belt (72).

2. Pressure roller (44).

3. Check all idler and drive wheel bearings.

4. Check left and right reel spindles. The brakes should be disengaged or held away before turning spindles.

5. Motor bearings. Check by turning shaft by hand.

Check to see that:

1. Supply reel is free to rotate and is not scraping top plate.

2. Rubber belts (110) touch motor pulley (117) only when in "Rewind" position.

3. Brakes are released.

4. Pressure roller (44) is making good contact with capstan.

5. Capstan is clean.

Check for irregularities:

1. Idler wheel surfaces.

2. Pressure roller (44) surface.

4. Take-up tension. Take-up clutch can be checked by holding right spindle while recorder is in "Play" position. The tension should be smooth without any pulsations. If surface of take-up clutch felt (90) is gummy, it must be replaced.

NOTE: Oil on any of the foregoing drive surfaces will cause "Wow".

Insufficient Tape Take Up

1. Increase take up by adding another washer (101).

2. Clutch felt (90) may be worn — replace clutch felt.

Tape Squeak

Tape squeak is caused by faulty tape with insufficient lubrication. Tape squeaking is accentuated by high temperature and humidity. Squeaking can be minimuzed by:

1. Cleaning head and pressure pads with alcohol.

2. Slightly decreasing pressure pad spring (29 or 31) tension.

FUNCTION SWITCH OPERATION

"Stop" Key (51) Pressed

Power to solenoid (122) interrupted, amplifier connected to input jack, and output transformer (T2) secondary disconnected.

Speaker Key (53) Pressed

Connects secondary of output transformer to Monitor Output Jack (M4) for public address in "Stop" position, or monitoring in "Record" position.

"Play" Key (52) Pressed

"Play-Record Coil" connected to first stage of amplifier input. "Speaker" key automatically actuated with "Play" key, tone control (R1B) operating.

"Record" (54) Key Pressed

"Play-Record Coil" connected to amplifier output, bias-erase oscillator circuit functioning, and tone control disconnected. If "Speaker" key is pressed, output is muted with 10Ω resistor (R45). Record level indicators (M6) and (M7) operate in all functions. Monitoring of "Recording" may be accomplished by inserting 3-4Ω speaker in Monitor Output Jack.

ELECTRICAL TROUBLES

Weak Playback Volume Or No High Frequencies

1. Check for dirty head (25). Clean head with alcohol. (The plastic head cover is removed by pressing below the word "Revere" and then prying up.)

2. Check pressure pads.

3. Wrong type of tape or wind. (Dull side of tape should be wound "in" — "A" wind.)

4. Check head azimuth adjustment (Page 8).

5. Head may be worn badly or need replacement.

6. Check adjustment and condition of (L1), if only pre-amp output is defective.

Recorder Dead, Pilot Light (M9) Off

1. Check fuse (M10). Cause of blown fuse may be shorted 6X5GT (V6) or unit plugged into D.C. or 220 VAC.

2. Check power cord and on-off-switch (M11).

Public Address Volume Weak, Distorted, Or Dead (Stop & Speaker Keys Depressed)

1. Try another microphone, radio, etc., to see whether the input source is defective. Plug a 3-4Ω speaker in Monitor Output Jack.

2. Check all tubes and voltages indicated on schematic diagram.

3. Connect an audio generator to the grid of each stage to locate the area of fault.

Dead Playback, Appears To Operate Properly In Record, Level Indicators Operating

1. First half of 12AX7 (V1A) defective, (R11) open, or defective function switch contacts.

2. Check Monitor Output Jack. Check short in input grid shield wiring. Check for defective head.

Weak Or Distorted Record, Playback On Pre-Recorded Tape O.K.

1. Check bias-erase oscillator coil (L2) secondary for 80V @ 70KC.

2. Check input jack. Normal speech 1 ft. from microphone should flash the "Normal" indicator.

3. Check microphone or other input source. Microphone must have 3-circuit plug with shielded wire connected to ring, and shield to body; tip is not connected. One-volt input sources must have 2-circuit plug. Failure to push plug firmly all the way into jack will cause distortion.

4. Check bias-erase indicator lamp (M8). Lamp should light if oscillator is properly functioning.

Recording Level Indicators Inoperative, Records And Plays Properly

1. If indicators (M6) and (M7) are dead, lamps may be loose, or (C22), (C23), (R35) or (R37) open.

2. If lamp or lamps always glow, C22 and C23 may be shorted, R36 open, or amplifier may be oscillating.

Solenoid Does Not Actuate Pressure Roller (44) In "Play" Or "Record"

1. If using remote controls, check remote switch and cable connections.

2. Check on-off-switch (M11) and fuse (M10).

3. Check "Stop" key microswitch.

4. Check fiber arm on "Stop" key blade of push button switch.

5. Check mechanical linkage for binding.

6. Check solenoid.

Records-Background Hum, Hum Lower On Pre-Recorded Tape

1. Check all stages after the first and 6K6GT (V5) for cathode to heater leakage, also check (C1) and (C2).

2. Record from another microphone etc., to see whether hum comes from an outside source.

3. Adjust "Record Hum" control (R2) for minimum hum with "Stop" and "Speaker" keys down.

Hum In Playback, Falls Off With Decrease In Volume Control

1. Check first stage of 12AX7 (V1A). Adjust "Play Hum" control (R3) for minimum hum.

2. Move recorder away from hum fields such as fluorescent lamps, amplifiers, etc.

Microphonic Howl In "Play", But Dies Out When Volume Is Lowered

1. Try different 12AX7's in pre-amplifier stages.

No Erase, Records Over Previous Recordings

1. Check for dirt on erase head element and check pressure pads.

2. Check bias-erase oscillator coil (L2) secondary for 80 V @ 70KC. Check 6K6GT (V5) bias oscillator.

3. Check erase coil for open or short.

FM, TV Or Amateur Interference

This is heard as a raspy unsteady buzz or cross modulation by voice or music. Add a 10KΩ 1/2 watt resistor in series with each grid of 12AX7 (V1), directly between tube socket grid terminals and other input components.

No Sound, Neon Lamps Flashing With Signal

1. Check speaker switch.

2. Check transformer (T2) secondary for open.

3. Check connecting cables, jacks, plugs, etc.

AUXILIARY PARTS LIST

A173-5	Microphone Plug
A196-10	Hi-Fi Connecting Cable
A196-8	Attachment Cord Assembly
B195-4	Power Cord Assembly

TRA-1102	Accessory Adapter Cord
A195-3	Hand Switch Cord
TR-2601	Replacement Pressure Pads

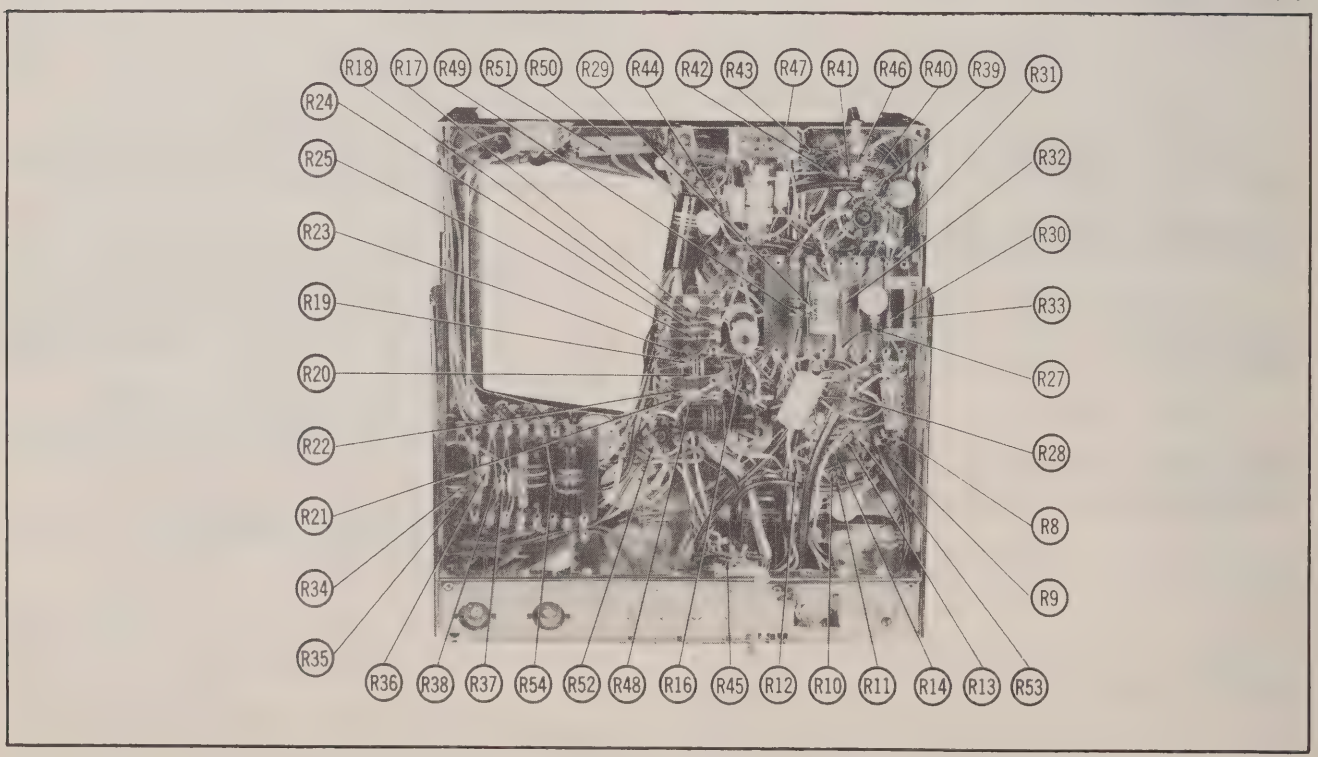


Figure 7. Bottom View Of Amplifier.

Ref. No.	Part No.	Description
V1	B120-3	12AX7, Pre-Amplifier
V2	B120-3	12AX7, AF Amplifier
V3	B120-17	6AU6, AF Amplifier
V4	B120-1	6V6GT, Audio Output
V5	B120-5	6K6GT, Bias Oscillator
V6	B120-2	6X5GT, Rectifier
C1A	A119-4	Cap., Elect., 30 Mfd. @ 450V.
B		Cap., Elect., 30 Mfd. @ 450V.
C		Cap., Elect., 35 Mfd. @ 400V.
D		Cap., Elect., 100 Mfd. @ 25V.
C2A	A119-1	Cap., Elect., 30 Mfd. @ 300V.
B		Cap., Elect., 15 Mfd. @ 350V.
C		Cap., Elect., 10 Mfd. @ 350V.
C3	A116-3	Cap., Elect., 100 Mfd. @ 6V.
C4	A116-3	Cap., Elect., 100 Mfd. @ 6V.
C5	A118-2	Cap., Elect., 5 Mfd. @ 300V.
C6	B115-1	Cap., Molded Tub., .1 Mfd. @ 200V.
C7	B112-6	Cap., Ceramic Tub., 680 Mmf.
C8	B113-10	Cap., Ceramic Disc, 1500 Mmf.
C9	B113-9	Cap., Ceramic Disc, 3300 Mmf.
C10	B112-3	Cap., Ceramic Tub., 220 Mmf.
C11	B114-11	Cap., Ceramic Disc, 50,000 Mmf.
C12	B114-2	Cap., Ceramic Disc, 15,000 Mmf.
C13	B112-7	Cap., Ceramic Disc, 750 Mmf.
C14	B113-8	Cap., Ceramic Disc, 5000 Mmf.
C15	B114-3	Cap., Molded Tub., .022 Mfd. @ 600V.
C16	B115-2	Cap., Molded Tub., .1 Mfd. @ 600V.
C17	B115-4	Cap., Molded Tub., .47 Mfd. @ 600V.
C18	B113-8	Cap., Ceramic Disc, 5000 Mmf.
C19	B113-4	Cap., Ceramic Disc, 3000 Mmf.
C20	B114-2	Cap., Ceramic Disc, 15,000 Mmf.
C21	B112-4	Cap., Ceramic Disc, 300 Mmf.
C22	B115-3	Cap., Molded Tub., .22 Mfd. @ 400V.
C23	B114-11	Cap., Ceramic Disc, 50,000 MMf.
C24	B114-11	Cap., Ceramic Disc, 50,000 Mmf.
C25	B112-5	Cap., Ceramic Tub., 470 Mmf.
C26	B113-1	Cap., Ceramic Tub., 1000 Mmf.
C27	B111-2	Cap., Ceramic Disc, 47 Mmf.
C28	B114-1	Cap., Ceramic Disc, 10,000 Mmf.
C29	B113-2	Cap., Mica, 2000 Mmf.
C30	B113-2	Cap., Mica, 2000 Mmf.
C31	B112-6	Cap., Ceramic Tub., 680 Mmf.
C32	B115-1	Cap., Molded Tub., .1 Mfd. @ 200V.
C33	B115-2	Cap., Molded Tub., .1 Mfd. @ 600V.
C34	B113-8	Cap., Ceramic Disc, 5000 Mmf.
C35	B115-3	Cap., Molded Tub., .22 Mfd. @ 400V.
C36	B110-1	Cap., Ceramic Tub., .47 Mmf.
R1A	B140-9	Volume Control, 2 Meg.
B		Tone Control, 2 Meg.
R2	A140-7	Record Hum Control, 100Ω
R3	A140-7	Play Hum Control, 100Ω
R4	B105-1	Resistor, 1 Meg., 1/2 Watt
R5	B103-5	Resistor, 18KΩ, 1/2 Watt
R6	B105-1	Resistor, 1 Meg., 1/2 Watt
R7	B103-5	Resistor, 18KΩ, 1/2 Watt

Ref. No.	Part No.	Description
R8	B105-1	Resistor, 1 Meg., 1/2 Watt
R9	B102-5	Resistor, 2700Ω, 1/2 Watt
R10	B105-5	Resistor, 10 Meg., 1/2 Watt
R11	B104-8	Resistor, 470KΩ, 1/2 Watt
R12	B104-11	Resistor, 560KΩ, 1/2 Watt
R13	B104-11	Resistor, 560KΩ, 1/2 Watt
R14	B104-6	Resistor, 220KΩ, 1 Watt
R15	B103-15	Resistor, 82KΩ, 1/2 Watt
R16	B105-1	Resistor, 1 Meg., 1/2 Watt
R17	B102-1	Resistor, 1000Ω, 1/2 Watt
R18	B103-4	Resistor, 15KΩ, 1/2 Watt
R19	B103-14	Resistor, 33KΩ, 1/2 Watt
R20	B103-4	Resistor, 15KΩ, 1/2 Watt
R21	B103-15	Resistor, 82KΩ, 1/2 Watt
R22	B103-7	Resistor, 22KΩ, 1/2 Watt
R23	B105-1	Resistor, 1 Meg., 1/2 Watt
R24	B103-14	Resistor, 33KΩ, 1/2 Watt
R25	B102-1	Resistor, 1000Ω, 1/2 Watt
R26	B104-14	Resistor, 100KΩ, 1/2 Watt
R27	B104-18	Resistor, 100KΩ, 1 Watt
R28	B101-8	Resistor, 390Ω, 1/2 Watt
R29	B104-15	Resistor, 200KΩ, 1/2 Watt
R30	B104-16	Resistor, 270KΩ, 1/2 Watt
R31	B104-17	Resistor, 180KΩ, 1/2 Watt
R32	B104-8	Resistor, 470KΩ, 1/2 Watt
R33	A106-8	Resistor, 330Ω, 3 Watt
R34	B104-11	Resistor, 560KΩ, 1/2 Watt
R35	B104-14	Resistor, 100KΩ, 1/2 Watt
R36	B104-18	Resistor, 100KΩ, 1 Watt
R37	B104-14	Resistor, 100KΩ, 1/2 Watt
R38	B104-5	Resistor, 220KΩ, 1/2 Watt
R39	B105-3	Resistor, 4.7 Meg., 1/2 Watt
R40	B104-16	Resistor, 270KΩ, 1/2 Watt
R41	B104-7	Resistor, 390KΩ, 1/2 Watt
R42	B104-4	Resistor, 150KΩ, 1/2 Watt
R43	B104-14	Resistor, 100KΩ, 1/2 Watt
R44	B103-1	Resistor, 10KΩ, 1/2 Watt
R45	B100-2	Resistor, 10Ω, 1 Watt
R46	B100-4	Resistor, 47Ω, 1 Watt
R47	B104-5	Resistor, 220KΩ, 1/2 Watt
R48	B103-9	Resistor, 47KΩ, 1/2 Watt
R49	B103-3	Resistor, 10KΩ, 2 Watt
R50	A106-9	Resistor, 650Ω, 5 Watt
R51	A106-9	Resistor, 650Ω, 5 Watt
R52	B100-1	Resistor, 4.7Ω, 1/2 Watt W.W.
R53	B100-1	Resistor, 4.7Ω, 1/2 Watt W.W.
R54	B102-3	Resistor, 1200Ω, 1/2 Watt
T1	B130-3	Power Transformer, 115 Volts
T2	A131-4	Output Transformer
L1	A-133-5	High Freq. Equalization Adj. Coil
L2	A-132-2	Oscillator Coil
M1	A173-5	Mike, Radio, Phono Input Jack
M2	A174-5	Tuner, Phono Input Jack
M3	B141-3	Function Switch
M4	A174-14	Monitor Amp. Output Jack
M5	A174-14	Pre-Amp. Output Jack
M6	A121-2	Normal Indicator, Neon #NE-45
M7	A121-2	Distort Indicator, Neon #NE-45
M8	A121-4	Record Bias Ind., Neon #NE-51
M9	A121-1	Pilot Light, Type #47
M10	A176-3	Fuse, 2 Amp. Slo-Blo
M11	A141-13	On-Off Switch

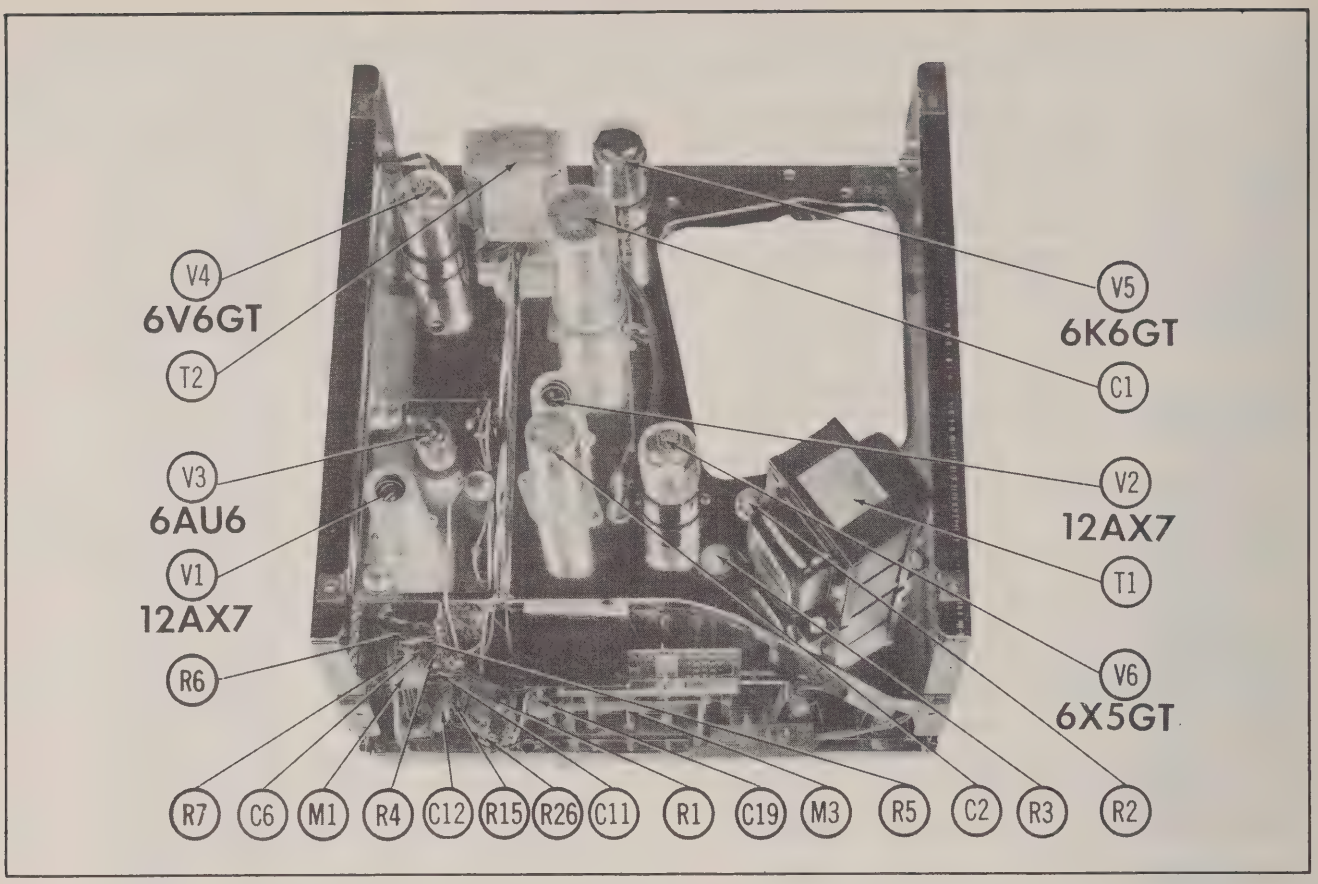


Figure 8. Top View Of Amplifier Showing Resistor Locations.

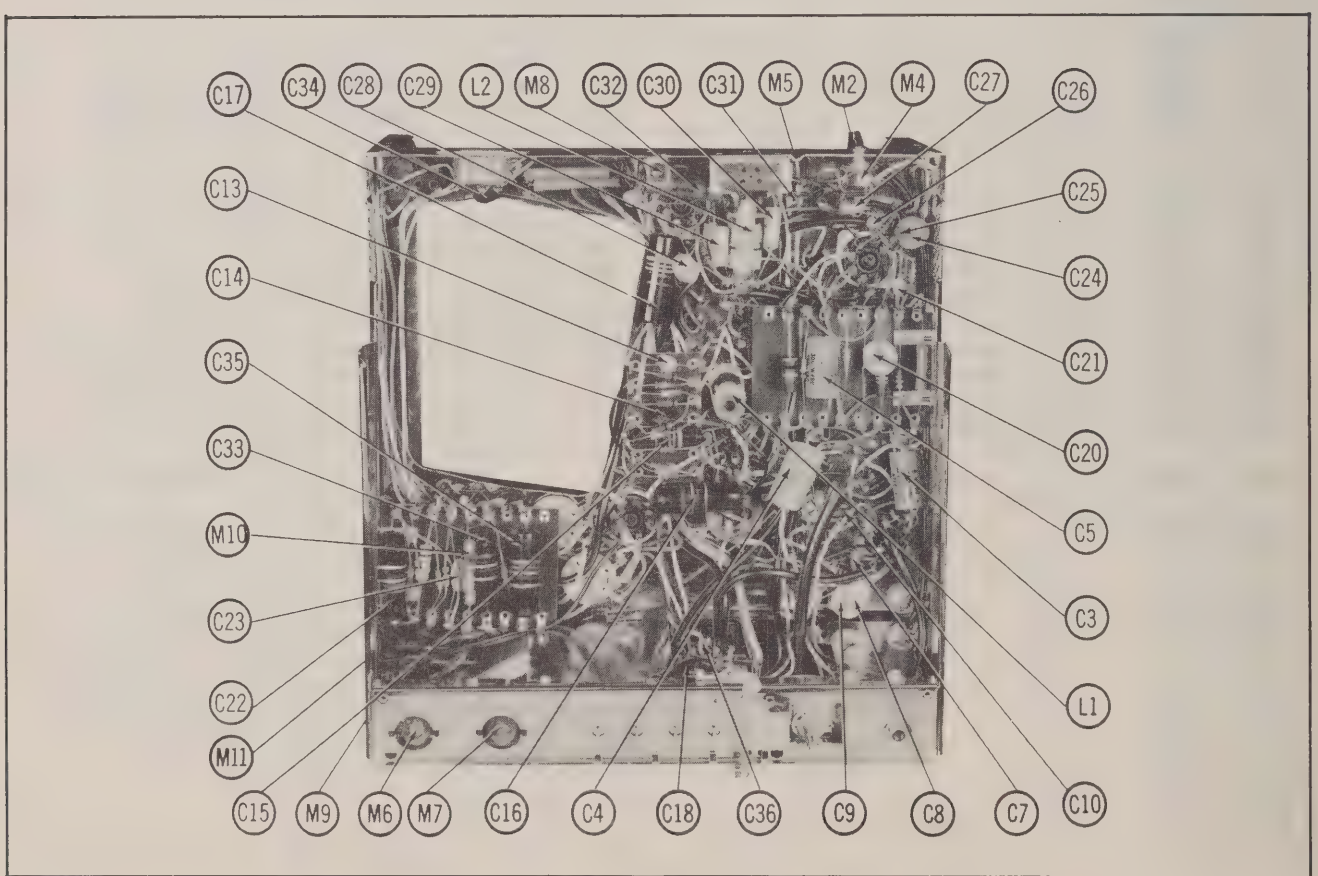
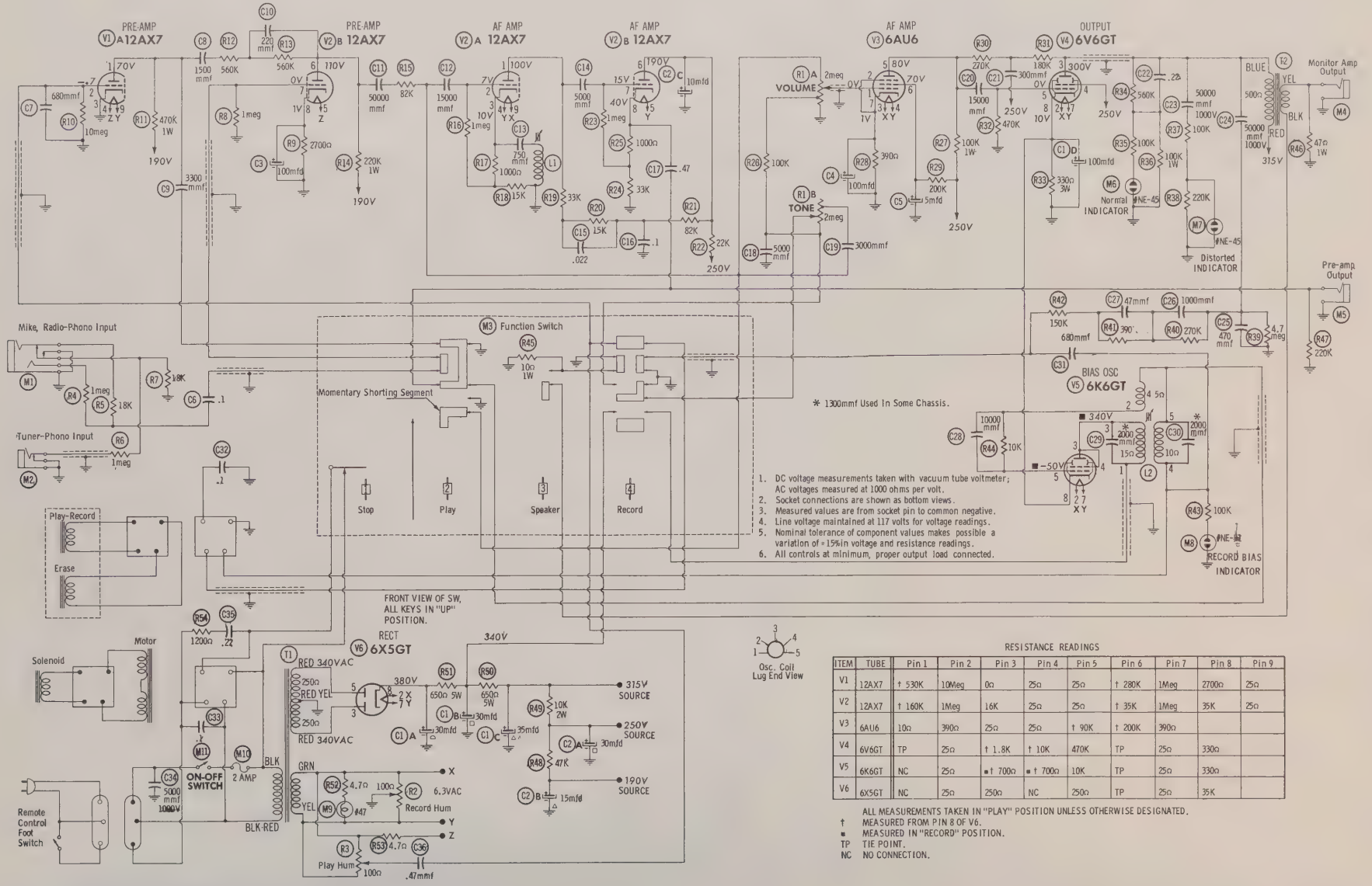


Figure 9. Top View Of Amplifier Showing Capacitors, Coils, & Miscellaneous Parts.



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12AX7	† 530K	10Meg	0Ω	25Ω	25Ω	† 280K	1Meg	2700Ω	25Ω
V2	12AX7	† 160K	1Meg	16K	25Ω	25Ω	† 35K	1Meg	35K	25Ω
V3	6AU6	10Ω	390Ω	25Ω	25Ω	† 90K	† 200K	390Ω		
V4	6V6GT	TP	25Ω	† 1.8K	† 10K	470K	TP	25Ω	330Ω	
V5	6K6GT	NC	25Ω	▪† 700Ω	▪† 700Ω	10K	TP	25Ω	330Ω	
V6	6X5GT	NC	25Ω	250Ω	NC	250Ω	TP	25Ω	35K	

ALL MEASUREMENTS TAKEN IN "PLAY" POSITION UNLESS OTHERWISE DESIGNATED.
† MEASURED FROM PIN 8 OF V6.
▪ MEASURED IN "RECORD" POSITION.
TP TIE POINT.
NC NO CONNECTION.

Figure 10. Schematic Diagram.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958

386-8

MECHANICAL PARTS LIST

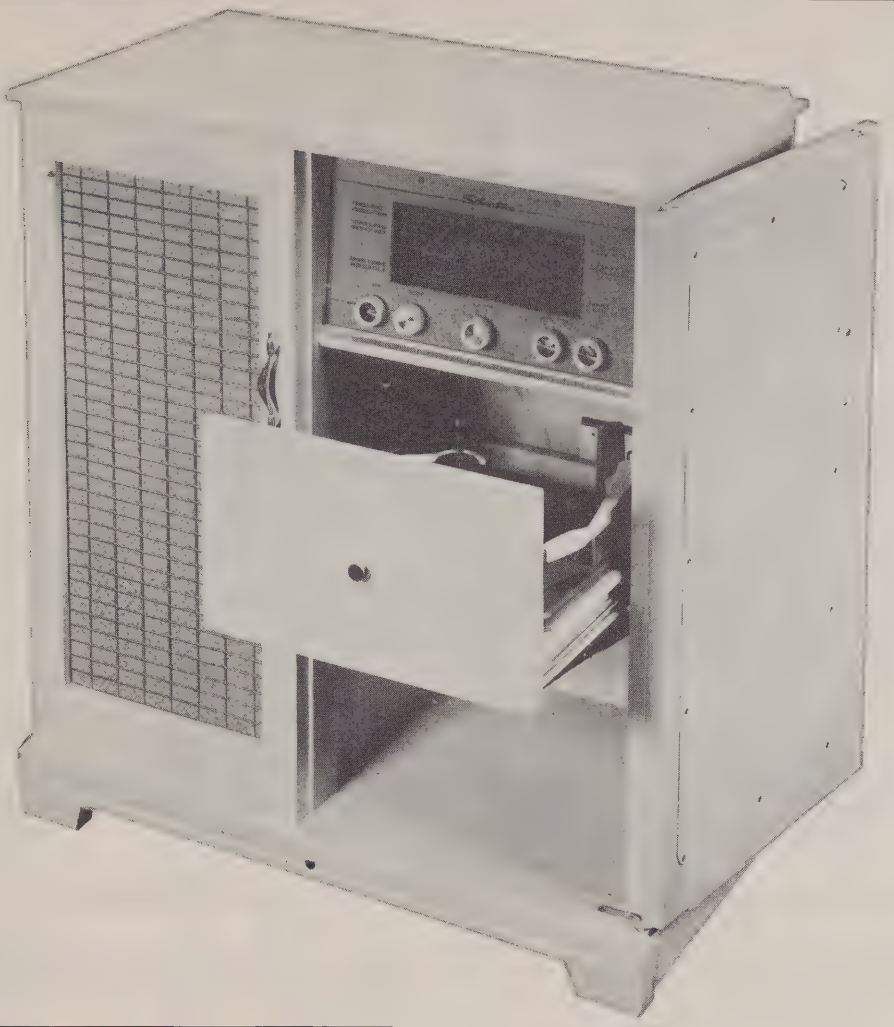
Ref. No.	Part No.	Description
1	B1-12306	N. A. R. T. B. Reel Hub Adaptor
2	A1-12295	Reel Lock Assembly
3	A4-12267	Screw
4	A13-12272	Reel Lock Spring
5	A4-12271	Reel Lock
6	TR-7260	Spindle Screw
7	R1-14078	Top Plate Assembly
8	TR-7251	Pan Head Screw, #6-32 x 7/32
9	A-187-9	Bias Indicator Jewel
10	TR-2694	Pilot Lamp Jewel
11	TR-7006	High Speed Knob
12	A3-14069	Tape Tension Arm
13	A15-14008	Head Cover, Rear
14	TR-7002	Head Cleaning Cover
15	TR-7001	Top Plastic Cover
16	A14-12636	#6-32 Screw
17	TR-7622	Spring
18	A9-12637	Hex. Nut
19	A9-12103	Roll Pin, 3/32 x 1 3/8"
20	TR-7502	Flat Washer
21	A9-10960	Speed Nut
22	TR-7150	Head Spring Retainer
23	TR-7425	#4-40 Screw (Bind. Head)
24	TR-7249	Head Spring Insulating Stud
25	C-161-1	Play-Record-Erase Head
26	TR-7429	Head Alignment Screw
27	TR-7520	"E" Ring
28	TR-7916	Erase Pressure Pad Assembly
29	TR-7615	Erase Pad Spring
30	TR-7915	Record Pressure Pad Assembly
31	TR-7610	Record Pad Spring
32	TR-7909	Upper Mechanism Plate Sub-Assembly
33	A13-14090	Instant Stop Spring
34	TR-7445	#8-32 Screw (Truss Head)
35	A4-11229	Spacer
36	B1-14533	Instant Stop Arm Assembly
37	C9-14084	Counter
38	A30-14542	Counter Drive Belt
39	TR-7523	"E" Ring
40	A3-14575	Spring Arm
41	TR-7521	"E" Ring
42	TR-7517	Washer
43	TR-7601	Pressure Roller Spring
44	TR-7921	Pressure Roller
45	TR-7445	#8-32 Screw (Truss Head)
46	A13-11203	Pressure Roller Arm Spring
47	TR-7267	Instant Stop Arm Bushing
48	B1-14527	High Speed Slide Assembly
49	TR-7526	Grip Ring, 3/16" Shaft
50	TR-7239	Key Shaft
51	TR-7937	Stop Key Assembly
52	TR-7938	Play Key Assembly
53	TR-7939	Speaker Key Assembly
54	TR-7940	Record Key Assembly
55	TR-7420	Stop Key Adjusting Screw
56	A9-11888	"E" Ring, 3/16" Shaft
57	A9-10960	Speed Nut
58	TR-7605	Idler Drive Spring
59	A1-14510	Flywheel Idler Slide
60	A1-12424	Flywheel Drive Idler
61	TR-2629	Washer, Blued
62	TR-7524	"E" Ring, 1/4" Shaft

Ref. No.	Part No.	Description
63	A13-14048	Rapid Forward Idler Spring
64	A9-14141	Speed Nut
65	A1-14511	Idler Slide Group, Rapid Forward
66	A1-14521	Rapid Forward Idler Assy.
67	TR-2629	Washer, Blued
68	TR-7524	"E" Ring, 1/4" Shaft
69	A8-14004	Flywheel Thrust Washer
70	A8-14025	Spring Washer
71	A1-12423	Flywheel Assembly
72	TR-7809	Take-Up Belt
73	A13-14111	Brake Arm Spring
74	A9-12315	Grip Ring
75	A13-14076	Brake Hold Lever Spring
76	A1-14095	Left Brake Arm Assembly
77	A15-14089	Nylon Brake Roller
78	A13-14077	Brake Roller Leaf Spring
79	A9-12315	Grip Ring
80	A1-14046	Right Brake Arm Assembly
81	A15-14089	Nylon Brake Roller
82	A13-14077	Brake Roller Leaf Spring
83	A4-14074	Brake Arm Spacer
84	TR-7513	Flat Washer
85	A3-14134	Rear Slide Cam
86	TR-7522	Crescent Retaining Ring
87	TR-7504	Pheonol Washer
88	A1-14516	High Speed Forward Cup Ass'y.
89	A30-12270	Take Up Spindle Drive Belt
90	TR-7817	Take Up Clutch Felt
91	TR-7110	Clutch Plate
92	TR-7504	Pheonol Washer
93	TR-7617	Clutch Plate Spring
94	TR-7109	Take Up Clutch Pulley
95	TR-7520	"E" Ring, 1/8" Shaft
96	A9-14539	Take Up Pulley Felt Washer
97	A1-14541	Take Up Pulley & Shaft Ass'y.
98	TR-7504	Pheonol Washer
99	TR-7504	Pheonol Washer
100	TR-7526	Grip Ring, 3/16" Shaft
101	TR-7514	Flat Washer, Steel
102	TR-7115	Take Up Clutch Lever
103	A9-11888	"E" Ring, 3/16" Shaft
104	TR-7607	Spring
105	TR-7912	Toggle Arm Assembly
106	TR-7604	Rewind Arm Spring
107	TR-7522	Crescent Retaining Ring
108	TR 7504	Fiber Washer
109	B1-12299	Intermediate Pulley Ass'y. Rewind
110	A30-12270	Rubber Drive Belt
111	A1-14548	Rewind Pulley & Shaft Ass'y.
112	TR-7504	Pheonol Washer
113	TR-7504	Pheonol Washer
114	TR-7526	Grip Ring, 3/16" Shaft
115	B1-14530	Rewind Support Arm Ass'y.
116	TR-7911	Solenoid Arm Assembly
117	A4-12286	Motor Pulley
118	TR-7127	Slide Cam Connector Arm
119	C9-14071	Motor, 115 Volt, 60 Cycle
120	TR-7157	Motor Fan
121	TR-7910	Solenoid Bracket Ass'y.
122	TR-7803	Solenoid (105-120 Volt)

PHOTOFACT* Folder

SILVERTONE MODELS 6066A, 6068, A, 6069, A (Ch. 528.39800, 528.40700)

SILVERTONE MODELS 6066A, 6068, A, 6069, A (Ch. 528.39800, 528.40700)



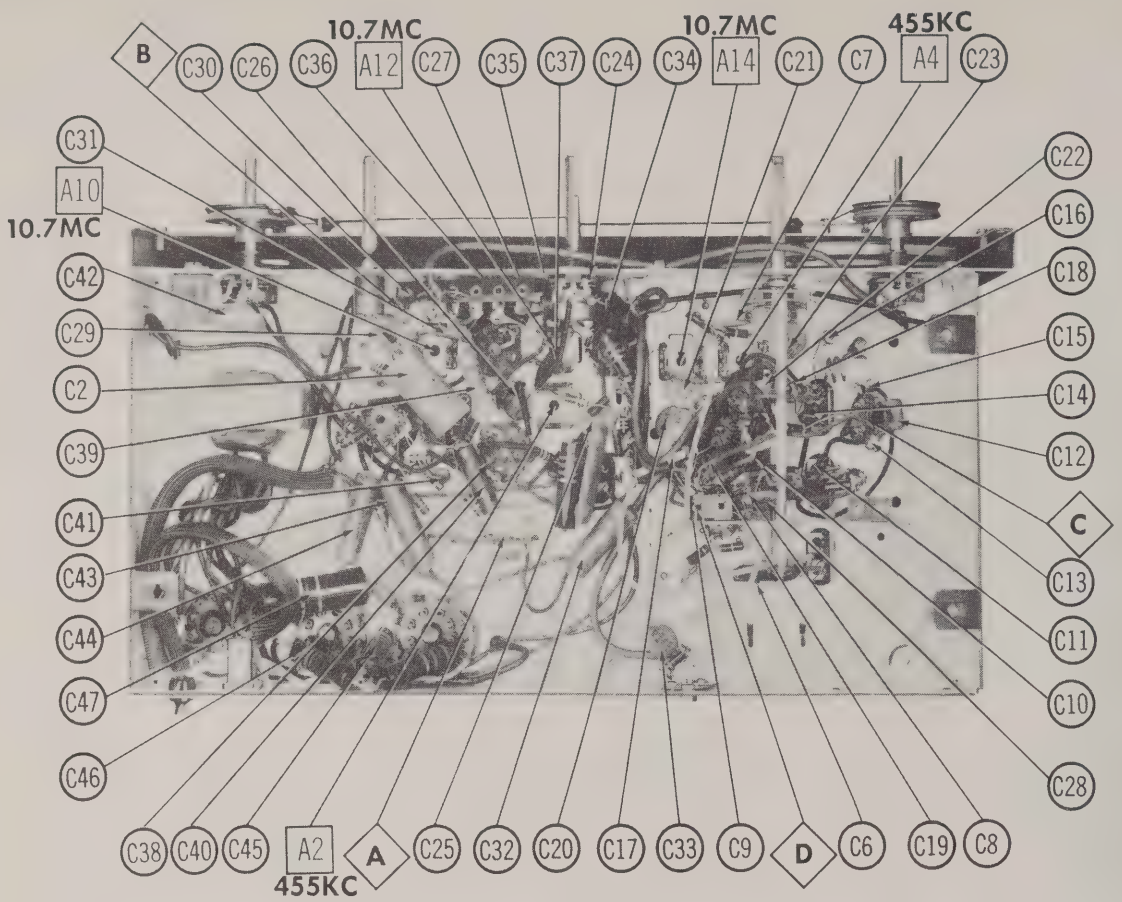
SILVERTONE MODELS 6066A, 6068, A, 6069, A (Ch. 528.39800, 528.40700)

TRADE NAME	Silvertone Models 6066A, 6068A, 6069A (Ch. 528.40700), 6068, 6069 (Ch. 528.39800)		
SUPPLIER	Sears, Roebuck & Co., 925 S. Homan Ave., Chicago, Illinois		
TYPE SET	AC Operated FM-AM Receiver With 3 Speed Automatic Record Changer		
TUBES	Ten		
POWER SUPPLY	110-120 Volts AC-60 Cycles	RATING	1 Amp. @ 117 Volts AC (105 Watts)
TUNING RANGE—BROADCAST	530KC - 1620KC	FREQ. MOD.	88MC - 108MC

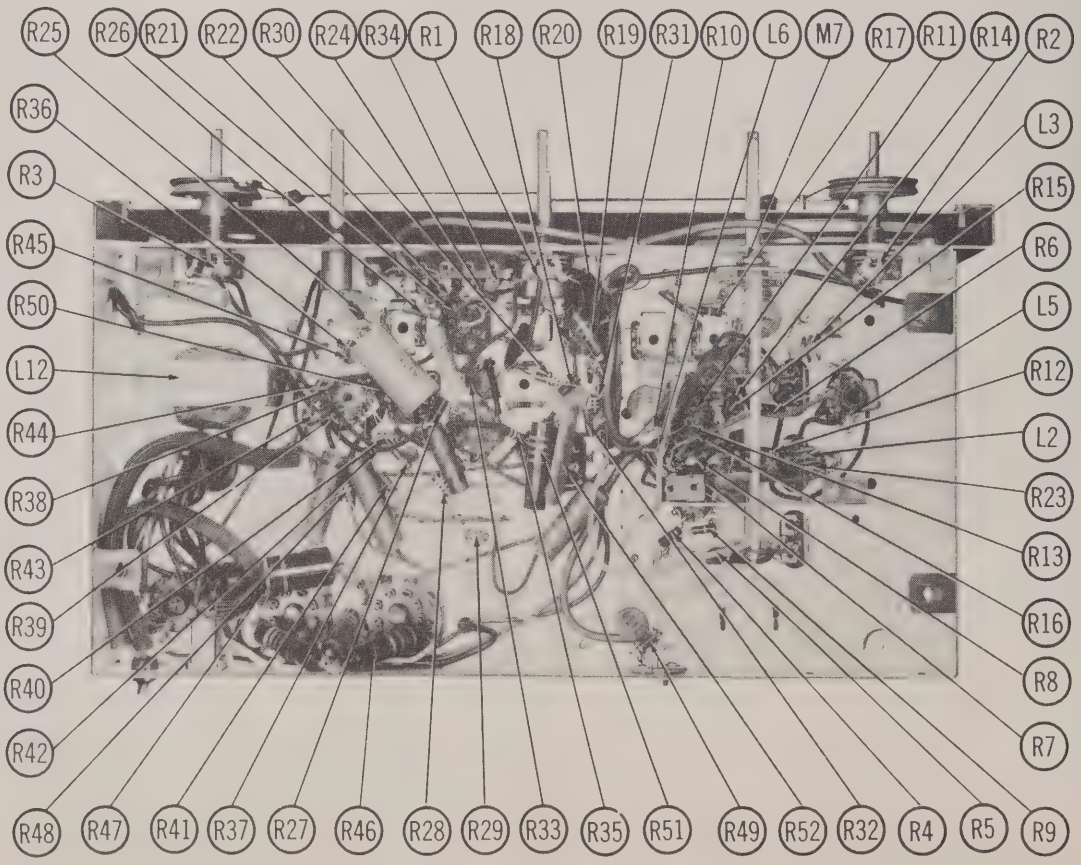
RECORD CHANGER — SILVERTONE MODEL 567.37004

L. F. BLANKENSHIP
DENVER, COLORADO

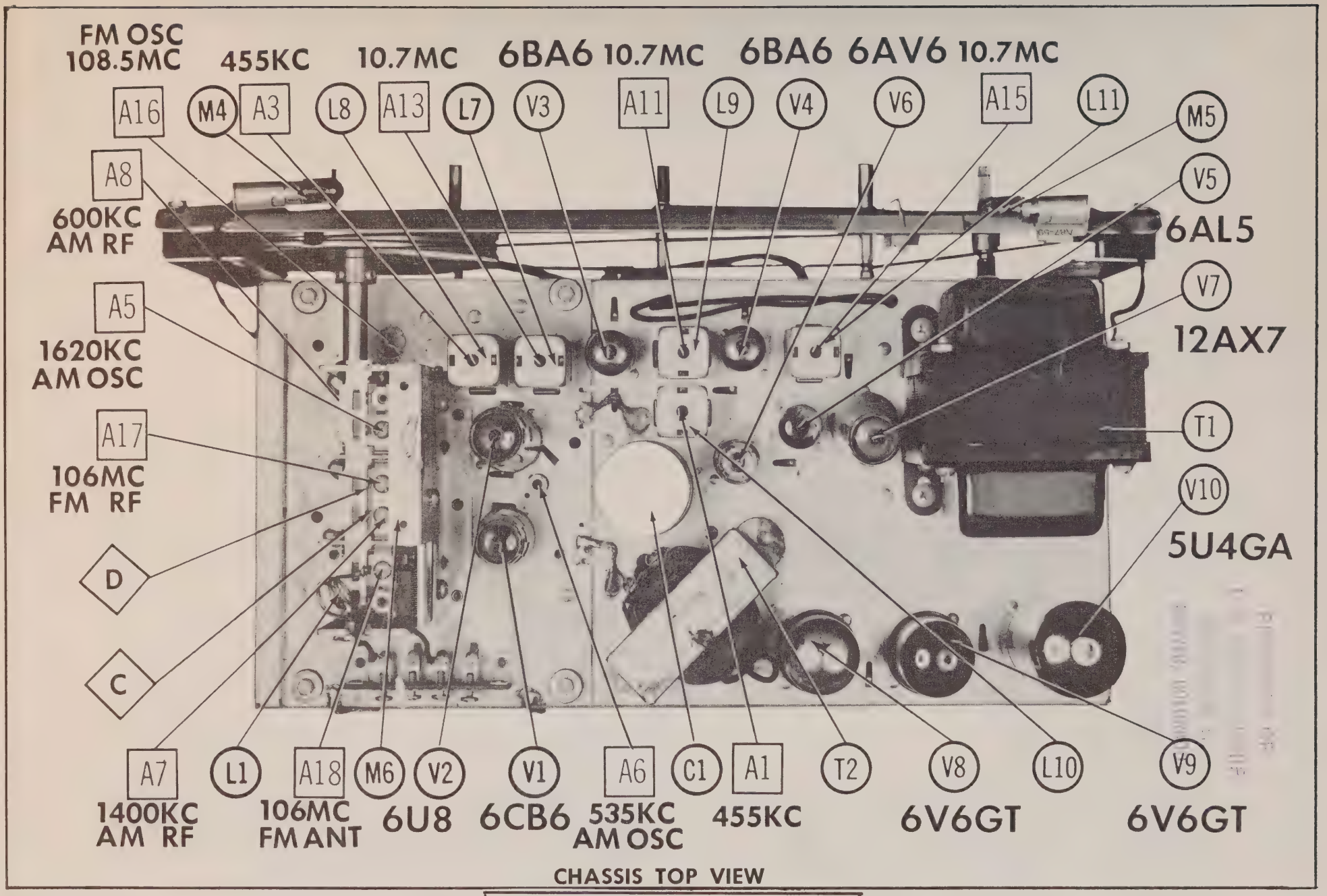
The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1958 Howard W. Sams & Co., Inc., Indianapolis 5, Indiana. Printed in U.S. of America



CHASSIS BOTTOM VIEW-CAPACITOR IDENTIFICATION



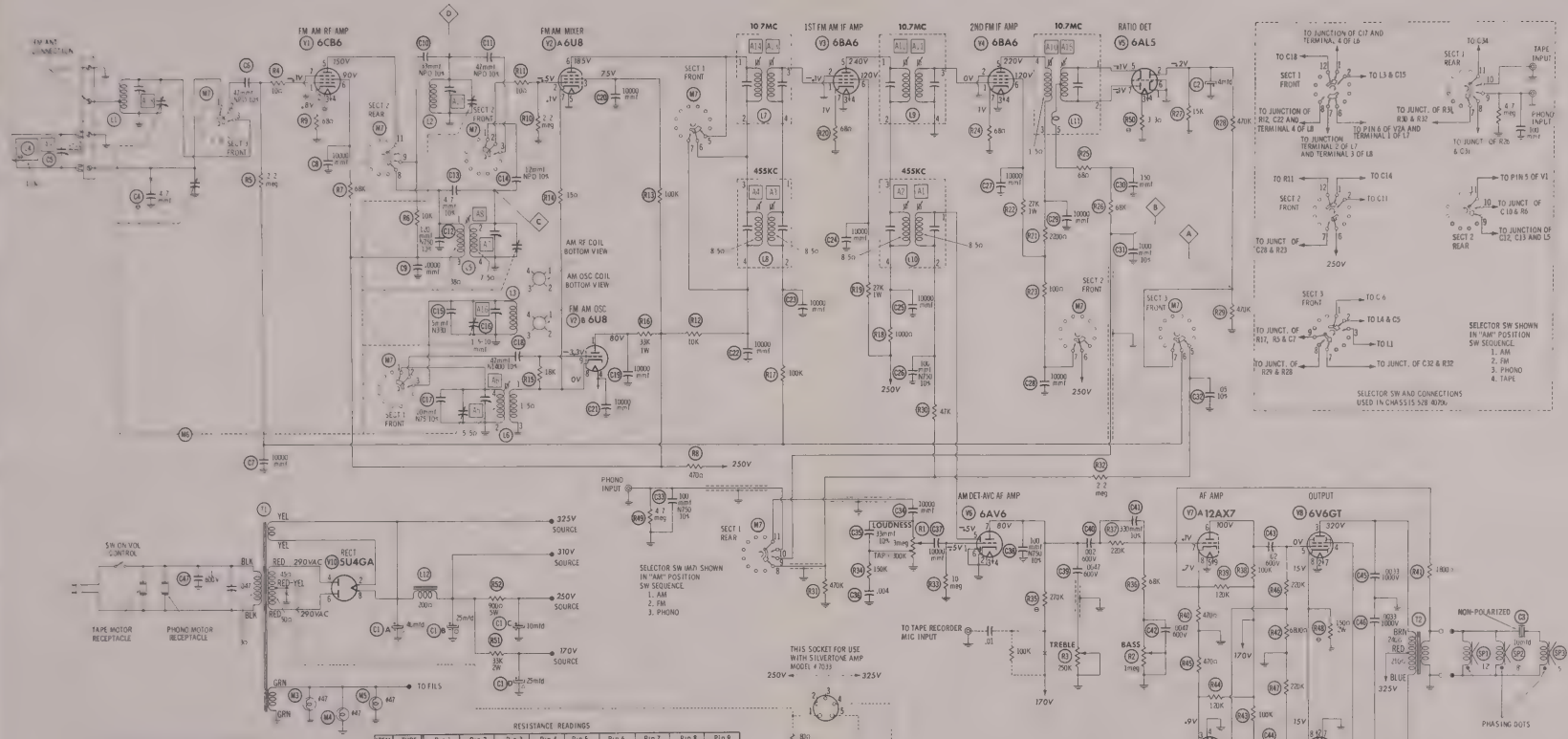
CHASSIS BOTTOM VIEW-RESISTOR IDENTIFICATION



CHASSIS TOP VIEW

MODEL 6066A (Ch. 528, 40700)
SILVERTONE

FOLDER 9


FM AM RF AMP V1 6CB6
FM AM MIXER V2 6U8
1ST FM AM IF AMP V3 6BA6
2ND FM IF AMP V4 6BA6
RATIO DET V5 6AL5
10.7MC
455KC
AM RF COIL BOTTOM VIEW
AM OSC COIL BOTTOM VIEW
FM AM OSC V7 B 6U8
SECT 1 FRONT
SECT 2 REAR
SECT 2 FRONT
SECT 3 FRONT
SELECTOR SW SHOWN IN "AM" POSITION SW SEQUENCE. 1. AM 2. FM 3. PHONO 4. TAPE
SELECTOR SW AND CONNECTIONS USED IN CHASSIS 528 407W
SELECTOR SW (AM) SHOWN IN "AM" POSITION SW SEQUENCE. 1. AM 2. FM 3. PHONO
PHONO INPUT
AM DET-AVC AF AMP V5 6AV6
AF AMP V7 A 12AX7
OUTPUT V8 6V6GT
PHASE INV V7 B 12AX7
OUTPUT V9 6V6GT
SW ON VOL CONTROL
RECT V10 5U4GA
325V SOURCE
310V SOURCE
250V SOURCE
170V SOURCE
TO FILS
TAPE MOTOR RECEPTACLE
PHONO MOTOR RECEPTACLE
TO TAPE RECORDER MIC INPUT
THIS SOCKET FOR USE WITH SILVERTONE AMP MODEL # 7039
TO FILAMENTS
LOUDNESS
TAP
BASS
TREBLE
NON-POLARIZED
PHASING DOTS

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC

● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6CB6	2.4meg	68Ω	0Ω	1Ω	↑11K	↑69K	0Ω		
V2	6U8	↑34K	2.2meg	↑100K	1Ω	0Ω	↑11K	16.5Ω	1.5Ω	18K
V3	6BA6	340K	0Ω	0Ω	1Ω	↑2000Ω	↑28K	68Ω		
V4	6BA6	5Ω	0Ω	0Ω	1Ω	↑3300Ω	↑28K	68Ω		
V5	6AL5	0Ω	15K	1.5Ω	1Ω	INF	0Ω	INF		
V6	6AV6	10meg	0Ω	0Ω	1Ω	470K	0Ω	↑300K		
V7	12AX7	↑130K	6800Ω	470Ω	0Ω	0Ω	↑130K	1meg	470Ω	.1Ω
V8	6V6GT	NC	0Ω	↑240Ω	↑200Ω	220K	NC	1Ω	150Ω	
V9	6V6GT	NC	1Ω	↑210Ω	↑200Ω	220K	NC	0Ω	150Ω	
V10	5U4G	NC	20Kmin.ea	NC	45Ω	NC	90Ω	NC	20Kmin.ea	

ALL MEASUREMENTS TAKEN IN "FM" POSITION
1. MEASURED FROM PIN 8 OF V10
NC NO CONNECTION

A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958

386-9

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting. Set Tone Controls to their mid-range.

AM ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1mfd	High side to AM RF stator lug on tuning gang. Low side to chassis.	455KC (400∿ Mod)	AM	Tuning gang fully open	Across voice coil	A1, A2, A3, A4	Adjust for maximum output.
2.	"	"	1620KC	"	1620KC	"	A5	"
3.	"	"	535KC	"	535KC	"	A6	"
4.	"	High side to AM Ant. stator lug on tuning gang. Low side to chassis.	1400KC	"	1400KC	"	A7	"
5.	"	"	600KC	"	600KC	"	A8	"
6.		Loop	1400KC	"	1400KC	"	A9	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output. Repeat steps 2 through 6 until no further improvement is noted.

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
7.	.005mfd	High side to FM RF stator lug on tuning gang. Low side to chassis.	10.7MC	FM	Point of non-interference	DC probe to point Ⓐ. Common to chassis.	A10, A11, A12, A13, A14	Adjust for maximum reading.
8.	"	"	"	"	"	DC probe to point Ⓐ. Common to point Ⓑ.	A15	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting. Repeat steps 7 & 8 until no further improvement is noted.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
7.	.005mfd	High side to FM RF stator lug on tuning gang. Low side to chassis.	10.7MC (300KC Swp)	FM	Point of non-interference	Vert. Amp. to point Ⓐ. Low side to chassis	A10, A11, A12, A13, A14	Adjust for curve of maximum amplitude and symmetry similar to Fig. 1.
8.	"	"	"	"	"	Vert. Amp. to point Ⓑ. Low side to chassis.	A15	Adjust A15 so that 10.7MC occurs at center similar to Fig. 2. SLIGHTLY retouch A14 for maximum amplitude and straightness of curve.

FM RF ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
9.	.005mfd	High side to FM RF stator lug on tuning gang. Low side to chassis.	108.5MC	FM	108.5MC	DC probe to point Ⓐ. Common to chassis.	A16	Adjust for maximum reading.
10.	300Ω Carbon Resistor	High side to FM Antenna terminal. Low side to chassis.	106MC	"	106MC	"	A17, A18	"

Check receiver calibration at 88, 98, and 106MC. If the difference between the dial pointer setting and these frequencies does not exceed 0.3MC, and the RF is tracking properly, alignment is satisfactory.
If the error is greater than 0.3MC, tune receiver to 88MC and compress or expand turns on L3 until signal is received at 88MC. (If original signal received is above 88MC, compress windings; if below 88MC, expand windings.)
Check calibration at 108MC. If error is greater than 0.3MC, readjust A16, A17, and A18.
Observe calibration at 106MC. If necessary, SLIGHTLY adjust spacing of FM Osc. tuning gang plates to receive 106MC signal at correct dial setting. Readjust A17, and A18.

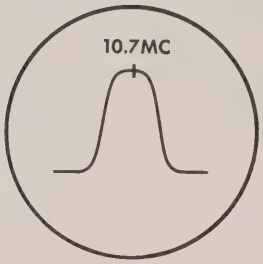


FIG. 1

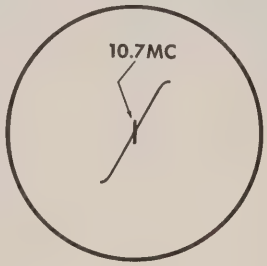


FIG. 2

PARTS LIST AND DESCRIPTIONS
TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	FM-AM RF Amplifier	6CB6	
V2	FM-AM Mixer-FM-AM Osc.	6U8	
V3	1st FM-AM IF Amplifier	6BA6	
V4	2nd FM IF Amplifier	6BA6	
V5	Ratio Detector	6AL5	
V6	AM Det. -AVC-AF Amp.	6AV6	
V7	AF Amp. -Phase Inverter	12AX7	
V8	Output	6V6GT	
V9	Output	6V6GT	
V10	Rectifier	5U4GA	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	SILVERTONE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	▲40	350	18-341	AFH4-04	D0032	FP420.35		T-160 MT-4510	R2428 *
B	■25	350							
C	10	350							
D	▲25	350							
C2	4	50	18-339	PRS150V4	BBR4-50	TC30	TD-4-50	MT-0504	TVA-1402
C3	10	150 NP	Y770127	NP-PRS350V10	BBR20-150 BBR20-150 †	TC45 TC45 †	TD-20-150 TD-20-150 †	MT-1520 MT-1520 †	R2486 *

† Connect negative leads together. * Non catalog item.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	SILVERTONE PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C4	4.7		15-257	NPO-SI 4.7	TCZ-4R7	C10V47C	TCO-4.7	ZT-5547	5TCCB-V47	Note 1
C5	1-12		20-165							
C6	47		15-333	NPO-SI 47	TCZ-47	CTA6Q47C	TCO-47	ZT-5447	5TCC-Q47	NPO 10%
C7	10000		15-211	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C8	10000		15-211	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C9	10000		15-211	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C10	33		15-332	NPO-SI 33	TCZ-33	CTA6Q33C	TCO-33	ZT-5433	5TCC-Q33	NPO 10%
C11	47		15-333	NPO-SI 47	TCZ-47	CTA6Q47C	TCO-47	ZT-5447	5TCC-Q47	NPO 10%
C12	120		15-346	N750-SI 120	TCN-120	CTA6T12U	TC7-120	NT-5312	5TCU-T12	N750 10%
C13	4.7		15-257	NPO-SI 4.7	TCZ-4R7	C10V47C	TCO-4.7	ZT-5547	5TCCB-V47	10%
C14	12		15-331		TCZ-12	CTA6Q12C	TCO-12			NPO 10%
C15	5		15-345							N330
C16	1.5-10		20-151		829-10					
C17	10		15-347	N750-SI 10	TCN-10	CTA6Q1U	TC7-10	NT-541	5TCU-Q1	N750 10%
C18	47		15-334							N1400 10%
C19	10000		15-211	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C20	10000		15-211	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C21	10000		15-211	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C22	10000		15-211	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C23	10000		15-211	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C24	10000		15-211	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C25	10000		15-211	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C26	100		15-266	N750-DI 100	TCN-100	C10T1U	TC7-100	NT-531	5TCU-T1	N750 10%
C27	10000		15-211	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C28	10000		15-211	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C29	10000		15-211	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C30	150		15-251	BPD-00015	DD-151	L10T15	ED-150	UC-5315	5GA-T15	
C31	1000		15-337				ED-1000		MS-21	10%
C32	.05	200	16-197							10%
C33	100		15-266	N750-DI 100	TCN-100	C10T1U	TC7-100	NT-531	5TCU-T1	N750 10%
C34	10000		15-211	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C35	33		15-335	NPO-SI 33	D6-330	CTA6Q33C	ED-33	ZT-5433	5TCC-Q33	10%
C36	.004	200	16-164	P288N-004	D6-402	CUB6D4	GP-4000	GEM-624	6TM-D4	
C37	10000		15-211	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C38	100		15-266	N750-DI 100	TCN-100	C10T1U	TC7-100	NT-531	5TCU-T1	N750 10%
C39	.0047	600	16-233	P688N-0047	D6-472	CUB6D47	GP-4700	GEM-6247	6TM-D47	
C40	.002	600	16-198	P688N-002	D6-202	CUB6D2	GP-2000	GEM-622	6TM-S2	
C41	330		15-336		D6-331	L10T33	ED-330		MS-333	10%
C42	.0047	600	16-233	P688N-0047	D6-472	CUB6D47	GP-4700	GEM-6247	6TM-D47	
C43	.02	600	16-206	P688N-02	DD-203	CUB6S2	ED-02	GEM-612	6TM-S2	
C44	.02	600	16-206	P688N-02	DD-203	CUB6S2	ED-02	GEM-612	6TM-S2	
C45	.0033	1000		P1088N-0033		CUB10D33		GEM-10233	10TM-D33	
C46	.0033	1000		P1088N-0033		CUB10D33		GEM-10233	10TM-D33	
C47	.1	600	16-611	P688N-1	DF-104	CUB6P1		GEM-601	6TM-P1	

Note 1. Not used in some versions.

PARTS LIST AND DESCRIPTIONS (Continued)
CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	SILVERTONE PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	3Meg	½	24-266	BT-8517	A47F-3Meg		UT-461	Loudness, tap @ 300K
B	Shaft			Not Req.	FS-3		Not Req.	
C	Switch			KB-1	SWE-12		US-26	
R2A	1Meg	½	26-133	B-70	A47-1Meg-Z	Q13-137	U53	Bass
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
R3A	250K	½	26-134	B-51	A47-250K-Z	Q13-130	U44	Treble
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	SILVERTONE PART No.	NOTES
R4	10Ω		601000K	
R5	2.2Meg		602250M	
R6	10K		601030K	
R7	68K		606830K	
R8	470Ω		604710K	
R9	68Ω		606800K	
R10	2.2Meg		602250M	
R11	10Ω		601000K	
R12	10K		601030K	
R13	100K		601040K	
R14	15Ω		601500K	
R15	18K		601830K	
R16	33K	1	603331K	
R17	100K		601040M	
R18	1000Ω		601020M	
R19	27K	1	602731K	
R20	68Ω		606800K	
R21	2200Ω		602220M	
R22	27K	1	602731K	
R23	100Ω		601010M	
R24	68Ω		606800K	
R25	68Ω		606800K	
R26	68K		606830K	
R27	15K		601530K	
R28	470K		604740K	
R29	470K		604740K	
R30	47K		604730K	
R31	470K		604740M	
R32	2.2Meg		602250M	
R33	10Meg		601060M	
R34	150K		601540K	
R35	270K		602740M	Note 1
R36	68K		606830K	
R37	220K		602240K	
R38	100K		601040K	
R39	120K		601240K	
R40	470Ω		604710K	
R41	1800Ω		601820K	
R42	6800Ω		606820K	
R43	100K		601040K	
R44	120K		601240K	
R45	470Ω		604710K	
R46	220K		602240K	
R47	220K		602240K	
R48	150Ω	2	601512K	Note 2
R49	4.7Meg		604750M	
R50	3.3Ω		60-884	Note 3
R51	33K	2	603332K	
R52	900Ω	5	60-17	

Note 1. Some versions may use a 180K resistor in this application.
Note 2. Some versions may use a 220Ω resistor in this application.
Note 3. Some versions may use a 5.6Ω resistor in this application.

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	RATING SEC. 3	SILVERTONE PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117VAC @ 1A	580VCT @ .160A	5V @ 3A	6.3V @ 3.5A	80-340 ①				26R36 ②	

① Part #80-362 may be used in Ch. 528.40700.
② Use universal mounting brackets.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	SILVERTONE PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T2	7000Ω CT	3-4Ω	80-339	Z1013	A-2905	A-3880	24S55 ①	S-57X ①	① Drill new mounting hole.

PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	SILVERTONE PART No.	QUAM PART No.	
SP1	12"	PM	6-8Ω	012249 ①	12A31PA ①	① Parallel and phase
SP2	8"	PM	6-8Ω	012248 ①	8A6PA ①	
SP3	5"	PM	3-4Ω	012247	5A1	

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA				NOTES
		SILVERTONE PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L1	FM Ant. Coil	10-651				
L2	FM RF Coil	10-713				
L3	FM Osc. Coil	10-712				
L4	Loop Ant.	Y012254 *				Includes C5
L5	AM RF Coil	10-647	14-1076 ▲			▲ Use full secondary
L6	AM Osc. Coil	10-648	14-1077	BC-393	71-OSC.	
L7	1st. FM IF	10-519	16-3487	FM-254	1463	
L8	1st. AM IF	10-529	16-6758	BC-352	12-C1	
L9	2nd. FM IF	10-519	16-3487	FM-254	1463	
L10	2nd. AM IF	10-529	16-6758	BC-353	12-C2	
L11	Ratio Det.	10-534	17-3498	FM-255	1465	

* Part #Y012251 used in Models 6066A, 6068A, 6069 and 6069A.

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA					
	TOTAL DIRECT CURRENT	D. C. RESISTANCE	INDUCTANCE (0 CURRENT 1000 ∿)	SILVERTONE PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
L12	.50A	200Ω	4.2 Hy.	33-243	C5012	C-2977	C-1706 ①	26C42	C-4X ①

① Drill new mounting hole.

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA					REMARKS
	SILVERTONE PART No.	ASTATIC PART No.		ELECTRO-VOICE PART No.		
		CARTRIDGE	NEEDLE	CARTRIDGE	MOUNT	
M1	Y720087	55T or 81-TB	GD	56	PT-2	Models 6069, 6068
	Y720110	55T or 81-TB		56	PT-1	Models 6066A, 6068A, 6069A

ASTATIC NEEDLE LISTING SHOWN ABOVE IS SPECIFIED FOR THE RESPECTIVE REPLACEMENT CARTRIDGE LISTED. FOR ORIGINAL CARTRIDGE NEEDLE REPLACEMENTS SEE BELOW.

PHONO NEEDLE

(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

ITEM No.	REPLACEMENT DATA			REMARKS
	SILVERTONE PART No.	JENSEN PART No.	WALCO PART No.	
M2		†S-66 or †♦ S-66SD or ♦ S-66D	†W75TPS or †♦W75DS or ♦W75TPD	Models 6069, 6068
	Y720114	*JP-35 or †JPS-35 or †♦JPS-35SD or ♦JPS-35D	*W35TPA or †W35TPS or †♦W35DS or ♦W35TPD	Models 6066A, 6068A, 6069A

* Metal † Jewel ♦ Diamond

PARTS LIST AND DESCRIPTIONS (Continued)

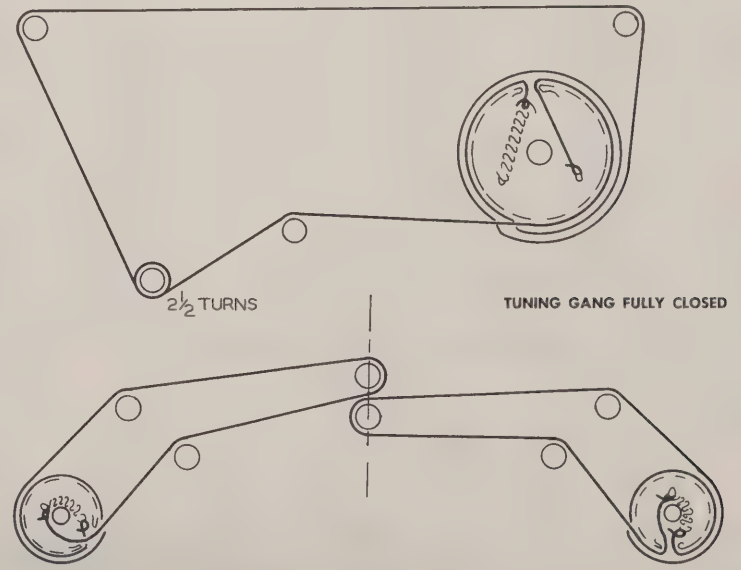
MISCELLANEOUS

ITEM No.	PART NAME	SILVERTONE PART No.	NOTES
M3	Pilot Lamp	89-7	#47
M4	Pilot Lamp	89-7	#47
M5	Pilot Lamp	89-7	#47
M6	Tuning Cap.	19-246	6 Gang (AM Sections: Ant. 17-575 mmf , RF 32-375mmf, Osc. 14-156mmf
M7	Switch	69-205	Band selector (Rotary, wafer type)

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	Y310267	Tuning, Treble & Bass (Models 6069, A)
Knob	Y310269	Tuning, Treble & Bass (Models 6068, A, 6066A)
Knob	Y310268	On-off-volume & Bandswitch (Models 6069, A)
Knob	Y310270	On-off-volume & Bandswitch (Models 6066A, 6068, A)
Cabinet	Y440199	Limed oak (Model 6069)
Cabinet	Y440270	Maple (Model 6066A)
Cabinet	Y440200	Mahogany (Models 6068, A)
Cabinet	Y440251	Limed oak (Model 6069A)
Handle	Y100901	Record Changer Drawer (Models 6069, A)
Handle	Y100941	Record Changer Drawer (Model 6066A)
Handle	Y100900	Record Changer Drawer (Models 6068, A)
Handle	Y100903	Cabinet Door (Models 6069, A)
Handle	Y100942	Cabinet Door (Model 6066A)
Handle	Y100902	Cabinet Door (Models 6068, A)
Dial Scale	Y490130	Models 6069, 6066A, 6068, A)
Dial Scale	Y490168	Model 6069A
Dial Pointer	58-114	



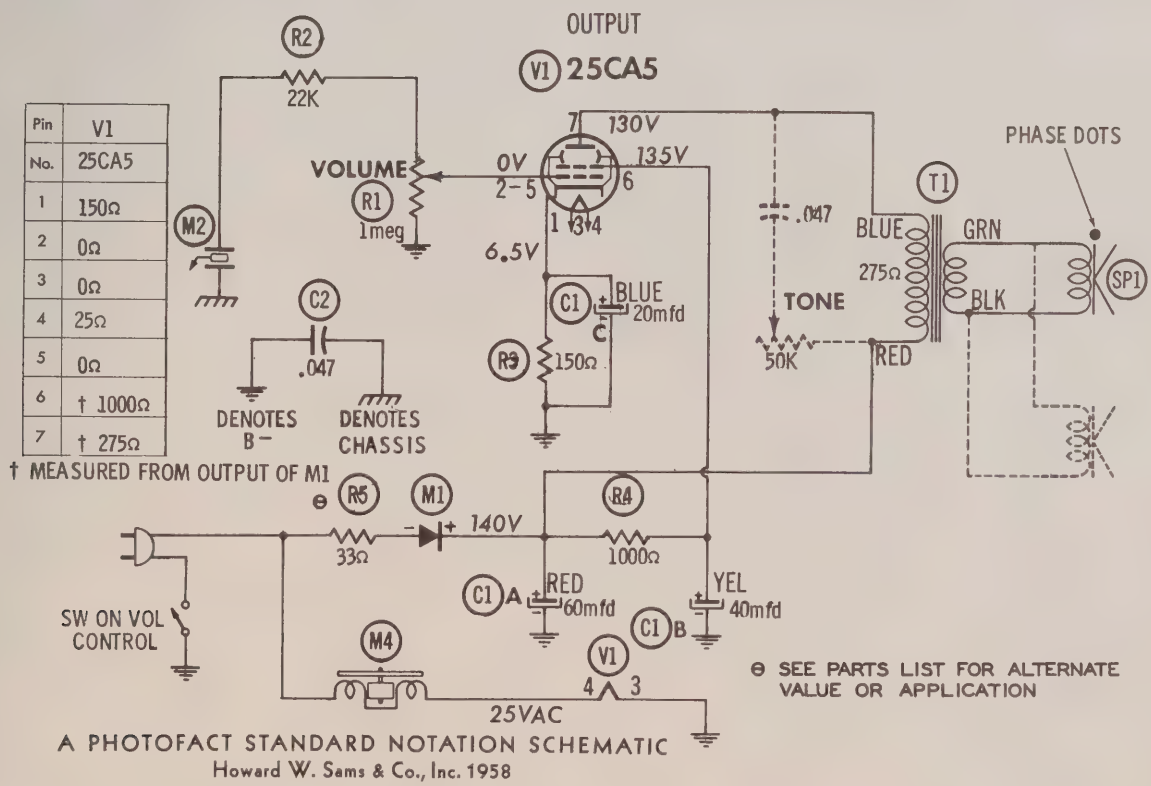
DIAL CORD STRINGING

PHOTOFACT* Folder

*TRADE MARK

SILVERTONE MODELS 8231, 8232, 8233, 8234
(Ch. 528.56000, 528.56001, 528.56002, 528.56010,
528.56011, 567.56000, 567.56010, 567.56011, 567.56012)

TRADE NAME	Silvertone	Models	8231 (Ch. 528.56000, 528.56001, 567.56000) 8232 (Ch. 528.56000, 528.56002, 567.56000, 567.56012) 8233 (Ch. 528.56010, 567.56010, 567.56012) 8234 (Ch. 528.56011, 567.56011, 567.56012)
SUPPLIER	Sears, Roebuck & Co., 925 S. Homan Ave., Chicago, Illinois		
TYPE SET	AC Operated Phono Amplifier With 4 Speed Manual Record Player		
TUBES (One)	Type 25CA5 Output		
POWER SUPPLY	105-120 Volts AC-60 Cycles	RATING	.38 Amp. @ 117 Volts AC, 32 Watts (With Motor)



Pin No.	V1 25CA5
1	150Ω
2	0Ω
3	0Ω
4	25Ω
5	0Ω
6	† 1000Ω
7	† 275Ω

† MEASURED FROM OUTPUT OF M1

⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

A PHOTOFACT STANDARD NOTATION SCHEMATIC

Howard W. Sams & Co., Inc. 1958

SILVERTONE MODELS 8231, 8232, 8233, 8234
(Ch. 528.56000, 528.56001, 528.56002, 528.56010,
528.56011, 567.56000, 567.56010, 567.56011, 567.56012)

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1958 Howard W. Sams & Co., Inc., Indianapolis 5, Indiana. Printed in U.S. of America

H120

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	Output	25CA5	

ITEM No.	USE	TYPE	NOTES

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	SILVERTONE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	60	150	18-56-5	PRS150/ 25V8040/20	BBRT8415C	WQ230	CDB-Q-1001	FMT-333	R2451 *
B	40	150							
C	20	20							

* Non Catalog Item

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	SILVERTONE PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C2	.047	400	16-47343	BPD-05	DF-503	CUB4S47		GEM-4147	4TM-S47	

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	SILVERTONE PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	1Meg	½	24-274-0	B-76	A47-2Meg-Z	Q13-139	U55	Volume
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	
C	Switch			KB-1	SWE-12	76-1	US-26	

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	SILVERTONE PART No.	NOTES
R2	22K		60-22301	
R3	150Ω		60-15101	

ITEM No.	RATING OHMS	RATING WATT	SILVERTONE PART No.	NOTES
R4	1000Ω		60-10201	
R5	33Ω		60-33002	Note 1

Note 1. Chassis 528. 56001, 528. 56002, 567. 56002 & 567. 56012 used 27Ω (Part #61-62).

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	SILVERTONE PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T1	3500Ω	3-4Ω	80-7-1	Z1105 ①②	A-2998	A-3328	24S48	S-16X①②	① Tape Tap(s) on Primary winding. ② Drill new mounting hole.

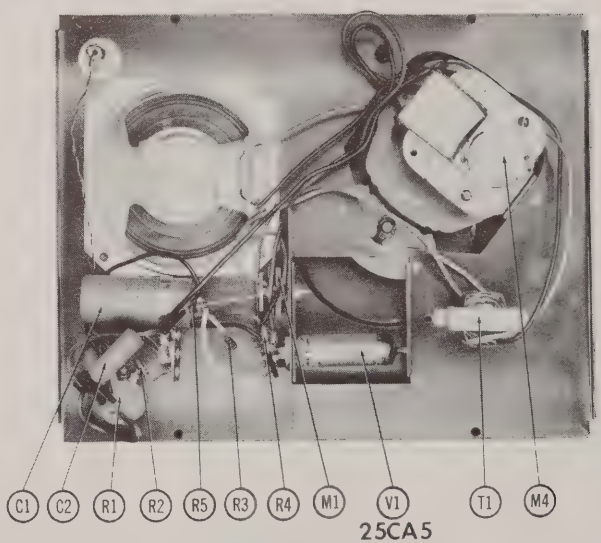
SPEAKER

ITEM No.	TYPE SIZE	TYPE FIELD	TYPE V. C. IMP.	SILVERTONE PART No.	QUAM PART No.	NOTES
SP1	4"	PM	3-4Ω	33-256-4	4A07	Two used in Model 8234 (Parallel & Phase)

SELENIUM RECTIFIER

ITEM No.	RATING CURRENT (Measured)	SILVERTONE PART No.	FEDERAL PART No.	INTERNATIONAL PART No.	SARKES TARZIAN PART No.	NOTES
M1	.045A	83-642	1002A	RS065	65	

CHASSIS—BOTTOM VIEW



PHONO CARTRIDGE

ITEM No.	SILVERTONE PART No.	ASTATIC PART No. CARTRIDGE	ASTATIC PART No. NEEDLE	ELECTRO-VOICE PART No. CARTRIDGE	ELECTRO-VOICE PART No. MOUNT	REMARKS
M2	33-276-0	414-2	N8-2			Models 8231, 8232, 8233
	33-285-0	420-TS	N8-1 N8-3			Model 8234
		B310-T				Tone Arm complete with Cartridge.

ASTATIC NEEDLE LISTING SHOWN ABOVE IS SPECIFIED FOR THE RESPECTIVE REPLACEMENT CARTRIDGE LISTED. FOR ORIGINAL CARTRIDGE NEEDLE REPLACEMENTS SEE BELOW.

PHONO NEEDLE

(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

ITEM No.	SILVERTONE PART No.	JENSEN PART No.	WALCO PART No.	REMARKS
M3	83-1145 (All Groove)	† CRA-552 or ♦ CRA-552D	† W-64AGS or ♦ W-64AGD	Models 8231, 8232, 8233
	83-1155-78 (78RPM) 83-1156 (16-33-45RPM)			Model 8234

† Jewel ♦ Diamond

MISCELLANEOUS

ITEM No.	PART NAME	SILVERTONE PART No.	NOTES
M4	Motor	59-90	Includes Drive Wheel (Alternate part #59-107)

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

PHOTOFACT* Folder

*TRADE MARK

EIA MEMBER ELECTRONIC INDUSTRIES ASSOCIATION

STROMBERG-CARLSON MODEL AU-63

STROMBERG-CARLSON MODEL AU-63

STROMBERG-CARLSON MODEL AU-63

TRADE NAME	Stromberg-Carlson Model AU-63
MANUFACTURER	Stromberg-Carlson Co., Sound Div., 1225 Clifford Ave., Rochester 21, N.Y.
TYPE SET	AC Operated 2 Channel Audio Amplifier
TUBES (Five)	Types 12AX7 Mic Preamp.-AF Amp., 12AT7 AF Amp.-Phase Inv., (2) 6V6GT Output, 5Y3GT Rectifier
POWER SUPPLY	110-120 Volts AC-50/60 Cycles RATING .62 Amp. @ 117 Volts AC (63 Watts).

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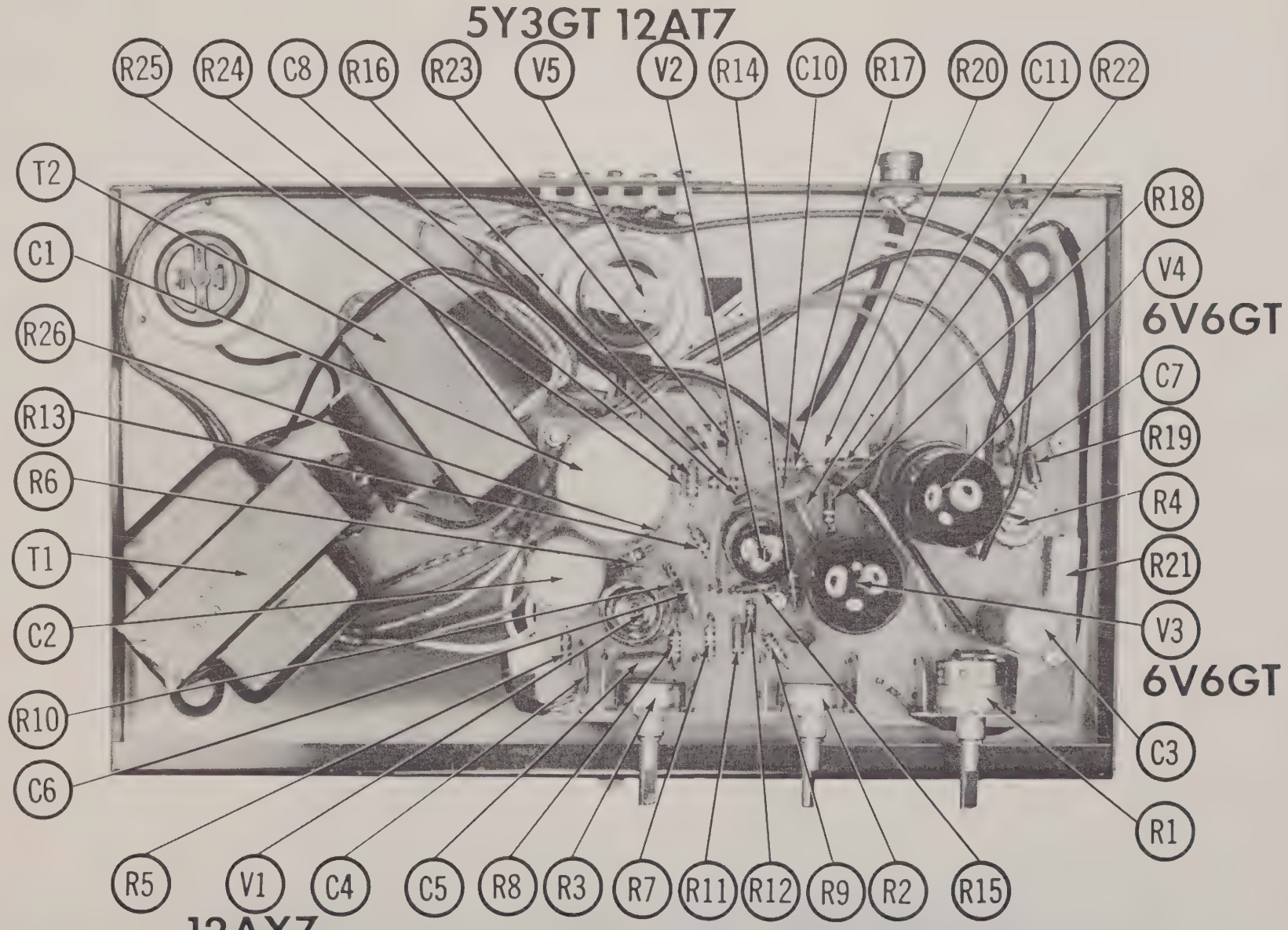
H235

FOLDER 11



CHASSIS TOP VIEW

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	Mic Preamp. -AF Amp.	12AX7	
V2	AF Amp. -Phase Inv.	12AT7	
V3	Output	6V6GT	
V4	Output	6V6GT	
V5	Rectifier	5Y3GT	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	Stromberg-Carlson PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1 A	▲40	400	111001-002	PR4-185	BBRQ0170.5				R2598 *
B	30	350							
C	▲20	300							
C2	40	250	111635-000	PRS250V40	BR4025	TC58	TD-40-250	MT-2540	TVA-1511
C3	50	50	111634-000	PRS50V50	BR505	TC39	TD-50-50	MT-0550	TVA-1308

* Non-catalog item.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	Stromberg-Carlson PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C4	20000			BPD-02	DD-203	BYB6S2	ED-02		5HK-S2	
C5	25000								TG-S25	
C6	25000								TG-S25	
C7	470			BPD-00047	DD-471	BYA10T47	ED-470	UC-5347	5GA-T47	
C8	24				DD-240	L10Q24	ED-24			
C9	25000								TG-S25	
C10	25000								TG-S25	
C11	330			BPD-00033	DD-331	L10T33	ED-330	UC-5333	5GA-T33	

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	Stromberg-Carlson PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1	500K	½	145655-000					Tone & Switch
R2	500K	½	145656-000					Phono Input
R3	500K	½	145656-000					Micro Input
R4	100Ω	2	145654-000					Hum Adjustment -Wire wound

PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		Stromberg-Carlson PART No.	NOTES
	OHMS	WATT		
R5	1Meg			
R6	470K			
R7	220K			
R8	470K			
R9	470K			
R10	470K			
R11	2200Ω			
R12	1Meg			
R13	270K			
R14	1800Ω			
R15	15K			
R16	47K			
R17	47K			
R18	100K			
R19	8200Ω			
R20	250Ω	5		
R21	300Ω	5		
R22	100K			
R23	100K	2		
R24	22K			
R25	82K			
R26	100K			

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA					
	PRI.	SEC. 1	SEC. 2	SEC. 3	Stromberg-Carlson PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117VAC @ .62A	660VCT @ .074A	5VAC @ 2A	6.3VAC @ 1.1A	161794-000	P9307 ①	P-2951 ①	PM8407 ①	22R37 ①	

① Fabricate mounting.

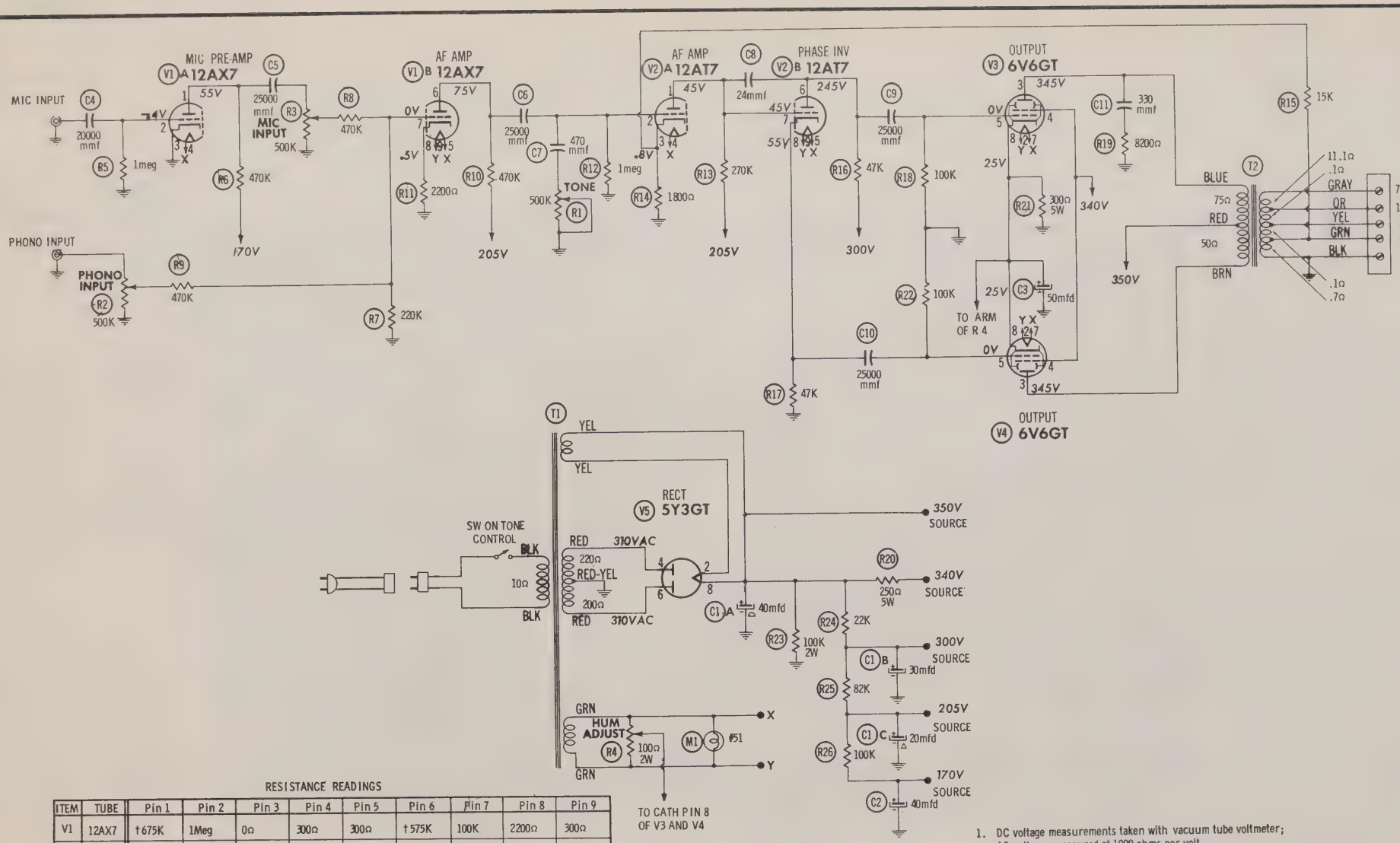
TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	Stromberg-Carlson PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	6000Ω CT	70V tap @ 16Ω, 8Ω, 4Ω	161354-000						

MISCELLANEOUS

ITEM No.	PART NAME	Stromberg-Carlson PART No.	NOTES
M1	Indicator Lamp		#51

PROPERTY OF
E. F. HUTTON & CO. INC.
NEW YORK, N.Y.



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12AX7	†675K	1Meg	0Ω	300Ω	300Ω	†575K	100K	2200Ω	300Ω
V2	12AX7	†375K	1Meg	1800Ω	300Ω	300Ω	†70K	†375K	47K	300Ω
V3	6V6GT	NC	300Ω	†75Ω	†250Ω	100K	NC	300Ω	300Ω	
V4	6V6GT	NC	300Ω	†50Ω	†250Ω	100K	NC	300Ω	300Ω	
V5	5Y3GT	0Ω	20K(Min)	NC	220Ω	NC	220Ω	NC	20K(Min)	

■ MEASURED FROM PIN 8 OF V2.
† MEASURED FROM PIN 8 OF V5.
NC NO CONNECTION.

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ±15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

Howard W. Sams & Co., Inc. 1958

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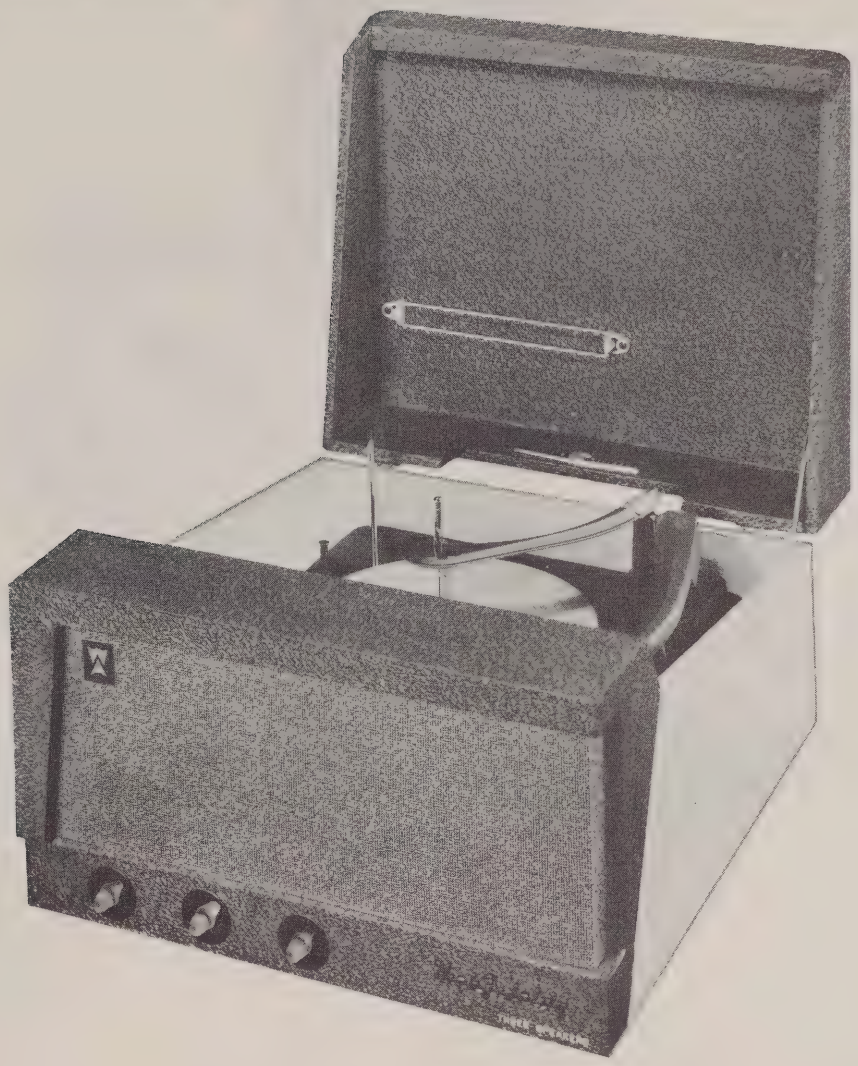
*TRADE MARK
EIA MEMBER ELECTRONIC INDUSTRIES ASSOCIATION

TRUETONE MODEL D5840A

TRUETONE MODEL D5840A



TRUETONE MODEL D5840A

TRADE NAME	Truetone Model D5840A
SUPPLIER	Western Auto Supply Co., 2107 Grand Ave., Kansas City, Mo.
TYPE SET	AC Operated Phono Amplifier With 4 Speed Automatic Record Changer
TUBES (Four)	Types 12AV6 AF Amplifier, 12AV6 Phase Inverter, (2) 50L6GT Output
POWER SUPPLY	105-125 Volts AC-60 Cycles RATING .38 Amp. @ 117 Volts AC (34 Watts Without Motor)

FOR SERVICE INFORMATION ON RECORD CHANGER PART #28A204 — SEE SIMILAR V-M MODEL 1200A — PHOTOFACT SET 353 FOLDER 16

PROPERTY OF
[illegible]

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

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PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	AF Amplifier	12AV6	
V2	Phase Inverter	12AV6	
V3	Output	50L6GT	
V4	Output	50L6GT	

ELECTROLYTIC CAPACITOR

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	TRUETONE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	■80	150	45X430	AFH3-13	C0120	FP311. 67	TMT-13	T-055	TVL-3444
B	▲40	150							
C	10	150							

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	TRUETONE PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C2	.047	400	RCP10W4473M	P488N-047	DF-503	CUB4S47		GEM-4147	4TM-S47	
C3	.047	400	RCP10W4473M	P488N-047	DF-503	CUB4S47		GEM-4147	4TM-S47	
C4	.0047	600	RCP10W6472M	P688N-0047	D6-472	CUB6D47	GP-4700	GEM-6247	6TM-D47	
C5	10		47X674	BPD-00001	DD-100	L10Q1	ED-10	UC-541	5GA-Q1	
C6	.022	200	RCP10W2223M	P288N-022	DD-203	CUB4S22	ED-02	GEM-4122	2TM-S22	
C7	500		47X508	SI 500	D6-501	LT6T5	GP-500	UC-535	5GA-T5	
C8	.022	200	RCP10W2223M	P288N-022	DD-203	CUB4S22	ED-02	GEM-4122	2TM-S22	
C9	.022	200	RCP10W2223M	P288N-022	DD-203	CUB4S22	ED-02	GEM-4122	2TM-S22	
C10	.047	200	RCP10W2473M	P288N-047	DF-503	CUB2S47		GEM-4147	2TM-S47	
C11	.047	200	RCP10W2473M	P288N-047	DF-503	CUB2S47		GEM-4147	2TM-S47	
C12	.01	200	RCP10W2103M	P288N-01	D6-103	CUB4S1	GP-10000	GEM-411	4TM-S1	
C13	.022	200	RCP10W2223M	P288N-022	DD-203	CUB4S22	ED-02	GEM-4122	2TM-S22	
C14	.082	400	RCP10W4823M							

CONTROLS

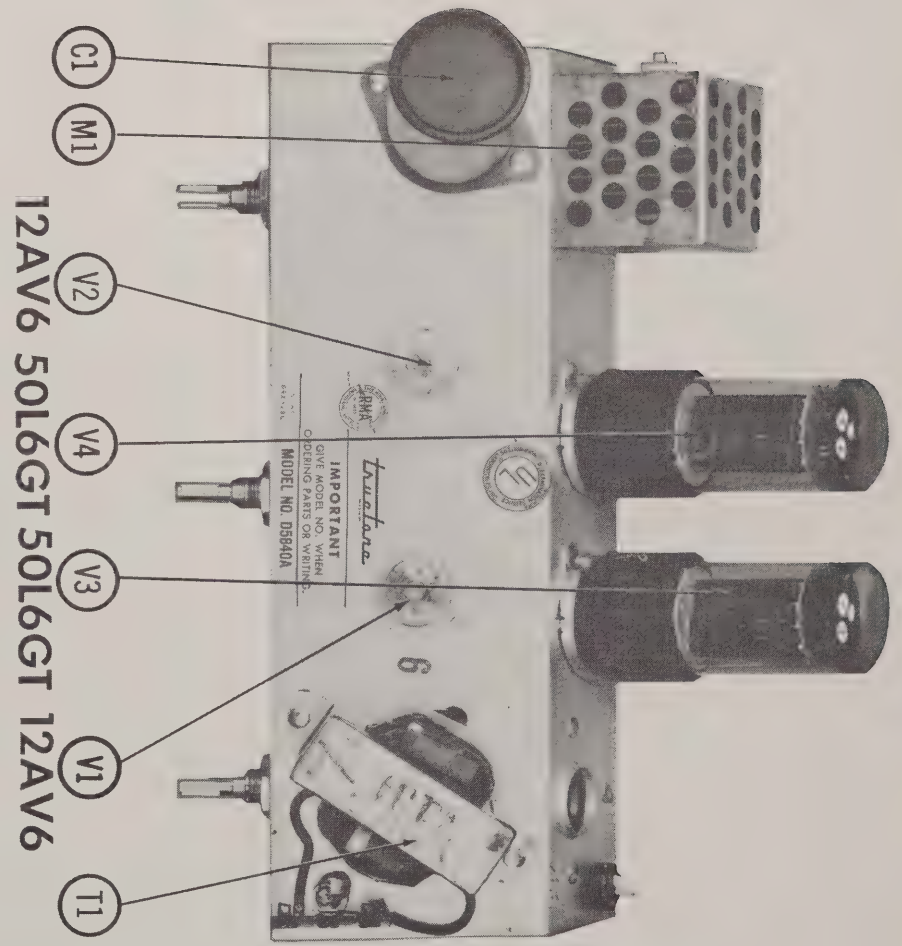
ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESIST-ANCE	WATTS	TRUETONE PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	1Meg	½	36X397	BT-74	A47F5-1Meg	Q19-137X	UT-443	Volume, Tap @ 500K
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	
R2	50K	½	40X421	B-34		Q14-123	U34	Treble
R3A	200K	½	40X420	B-51	A47-250K-Z	Q13-130	U44	Bass
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	
C	Switch			KB-1	SWE-12	76-1	US-26	

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		TRUETONE PART No.	NOTES
	OHMS	WATT		
R4	68K		B85683	
R5	10Meg		B85106	
R6	2200Ω 5%		B83222	
R7	12K		B84123	
R8	150Ω		B85151	
R9	220K		B84224	
R10	10Meg		B85106	
R11	10K		B84103	
R12	220K		B84224	
R13	470K		B84474	
R14	68Ω	2	D84680	
R15	470K		B84474	
R16	100Ω	2	D84101	
R17	22K		B85223	
R18	17Ω	5	43X383	
R19	15Ω		B85150	
R20	15Ω		B85150	

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	TRUETONE PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	2100Ω CT	2.6Ω	51X183						

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	TRUETONE PART No.	QUAM PART No.	
SP1	6"	PM	3-4Ω	12A534	6A15	
SP2	4"	PM	3-4Ω	12A543	4A07	
SP3	3½"	PM	13Ω	12A535	3A15T	

RECTIFIER

ITEM No.	RATING	REPLACEMENT DATA				NOTES
	CURRENT (Measured)	TRUETONE PART No.	FEDERAL PART No.	INTERNATIONAL PART No.	SARKES TARZIAN PART No.	
M1	.115A	66X15	1005A	RS150	150	

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA					REMARKS
	TRUETONE PART No.	ASTATIC PART No.		ELECTRO-VOICE PART No.		
		CARTRIDGE	NEEDLE	CARTRIDGE	MOUNT	
M2	55TJ	55T or 81-TB	GD	56	PT-2	

ASTATIC NEEDLE LISTING SHOWN ABOVE IS SPECIFIED FOR THE RESPECTIVE REPLACEMENT CARTRIDGE LISTED. FOR ORIGINAL CARTRIDGE NEEDLE REPLACEMENTS SEE BELOW.

PHONO NEEDLE

(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

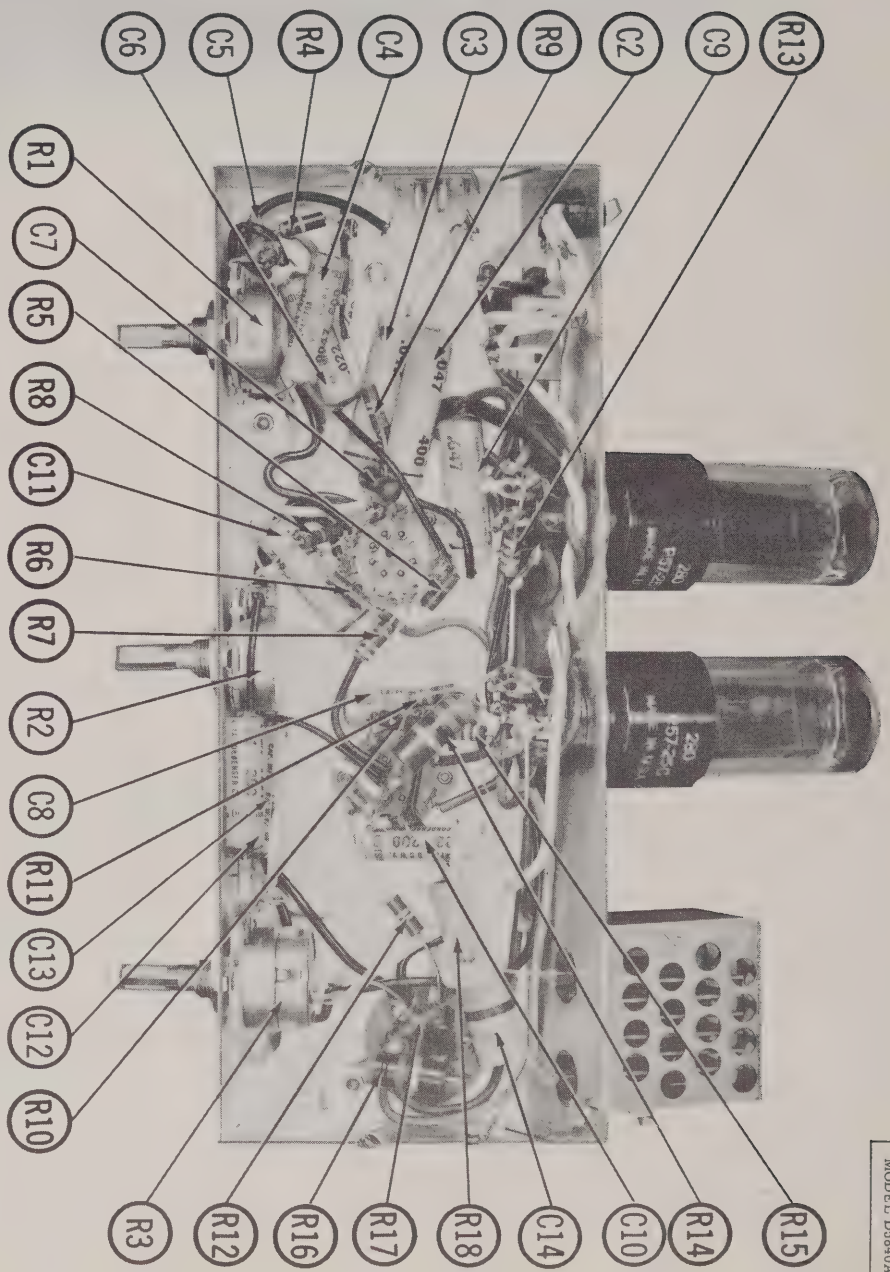
ITEM No.	REPLACEMENT DATA			REMARKS
	TRUETONE PART No.	JENSEN PART No.	WALCO PART No.	
M3		† A-71 or †♦ A-71SD or ♦ A-71D	† W75TPS or †♦ W75DS or ♦ W75TPD	† Jewel ♦ Diamond

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

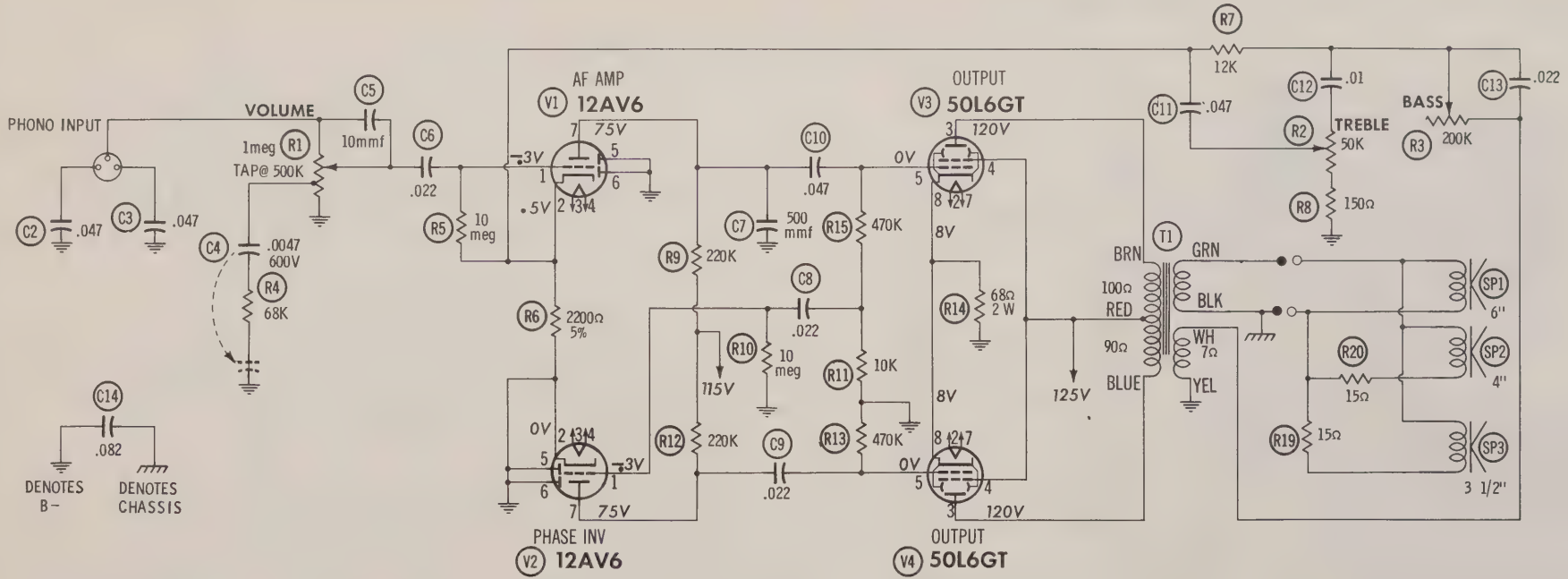
NAME	PART NO.	DESCRIPTION
Knob	10A900-1	On-Off-Bass
Knob	10A900-2	Treble
Knob	10A900-3	Volume

CHASSIS—BOTTOM VIEW



TRUETONE MODEL D5840A

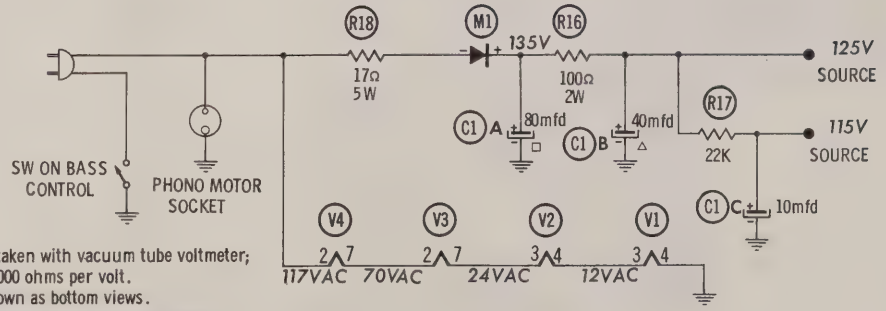
TRUETONE MODEL D5840A



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V1	12AV6	10Meg	2200Ω	12Ω	0Ω	0Ω	0Ω	†220K	
V2	12AV6	10Meg	0Ω	24Ω	12Ω	0Ω	0Ω	†220K	
V3	50L6GT	NC	70Ω	†200Ω	†100Ω	480K	NC	24Ω	68Ω
V4	50L6GT	NC	120Ω	†190Ω	†100Ω	470K	TP	70Ω	68Ω

† MEASURED FROM OUTPUT OF M1
NC NO CONNECTION
TP TIE POINT



1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to commom negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958

PHOTOFACT* Folder
*TRADE MARK

ZENITH
MODELS A504F, A504Y (Ch. 5A41)

ZENITH
MODELS A504F, A504Y (Ch. 5A41)

ZENITH
MODELS A504F, A504Y (Ch. 5A41)

TRADE NAME	Zenith Models A504F, A504Y (Ch. 5A41)
MANUFACTURER	Zenith Radio Corp., 6001 Dickens Ave., Chicago 39, Illinois
TYPE SET	Three Power Portable AM Receiver
TUBES (Five)	Types 1U4 RF Amplifier, 1R5 Converter, 1U4 IF Amplifier, 1U5 Det.-AVC-AF Amp., 3V4 Output
POWER SUPPLY	110-120 Volts AC-DC (Or) 9 Volts "A" Supply & 90 Volts "B" Supply
RATING	.15 Amp. @ 117 Volts AC (Or) 53MA @ 9 Volts DC & 14MA @ 90 Volts DC
TUNING RANGE—BROADCAST	535-1620KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use battery power, if possible. If AC power is used, use an isolation transformer when available. If not, connect a .1MFD capacitor in series with low side of the signal generator and B-.
Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.
To set pointer, turn tuning capacitor fully closed and set pointer to last reference mark at low frequency end of dial.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.5MFD	High side to pin 6 (grid) of 1R5 (V2). Low side to B-.	455KC (400~ Mod.)	600KC	Across voice coil.	A1, A2, A3, A4	Adjust for maximum output. If AC power is used without an isolation transformer reduce dummy antenna to 200MMF to reduce hum modulation.
2.		Loop	1600KC	1600KC	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.		"	1400KC	1400KC	"	A6, A7	"

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

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PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	RF Amplifier	1U4	
V2	Converter	1R5	
V3	IF Amplifier	1U4	

ITEM No.	USE	TYPE	NOTES
V4	Det., -AVC-AF Amplifier	1U5	
V5	Output	3V4	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	ZENITH PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	■80	150	22-2886	AFH3-64-65		FP302.5		T-240	R2313*
B	▲60	150						MT-1580	
C	200	10							

* Non Catalog Item.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	ZENITH PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C2	100	1000	22-5	HVD-15-100	DD-101	L10T1	HD15-100		5GA-T1	
C3	10000	1000	22-3		DD-103	BYA10S1				
C4	100	1000	22-5	HVD-15-100	DD-101	L10T1	HD15-100		5GA-T1	
C5	470	1000	22-6	HVD-15-470	DD-471	BYA10T47	HD15-470	DC30347	5GA-T47	
C6	.022	200	22-2804	P288N-022	DD-203	CUB4S22	ED-02	GEM-4122	2TM-S22	
C7	.047	200	22-2792	P288N-047	DF-503	CUB2S47		GEM-4147	2TM-S47	
C8	50		22-2460	SI50	D6-500	LT6Q5	GP-50	UC-545	5GA-Q5	
C9	10000	1000	22-3		DD-103	BYA10S1				
C10	4700		22-4	BPD-0047	DD-472	BYA10D47	ED-0047	UC-5247	5GA-D47	
C11	100	1000	22-5	HVD-15-100	DD-101	L10T1	HD15-100		5GA-T1	
C12	4700		22-4	BPD-0047	DD-472	BYA10D47	ED-0047	UC-5247	5GA-D47	
C13	4700	1000	22-14							10%
C14	.1	200	22-2955	P288N-1	DF-104	CUB2P1		GEM-201	2TM-P1	
C15	.047	200	22-2792	P288N-047	DF-503	CUB2S47		GEM-4147	2TM-S47	
C16	10000	1000	22-3		DD-103	BYA10S1				

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	ZENITH PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	1Meg	½	63-3985	AB-69	A47-1Meg-S	Q11-137	U54	Volume
B	Shaft			AK-7	FS-3	Not Req.	Not Req.	
C	Switch			KB-2	SWE-20	76-2	US-27	

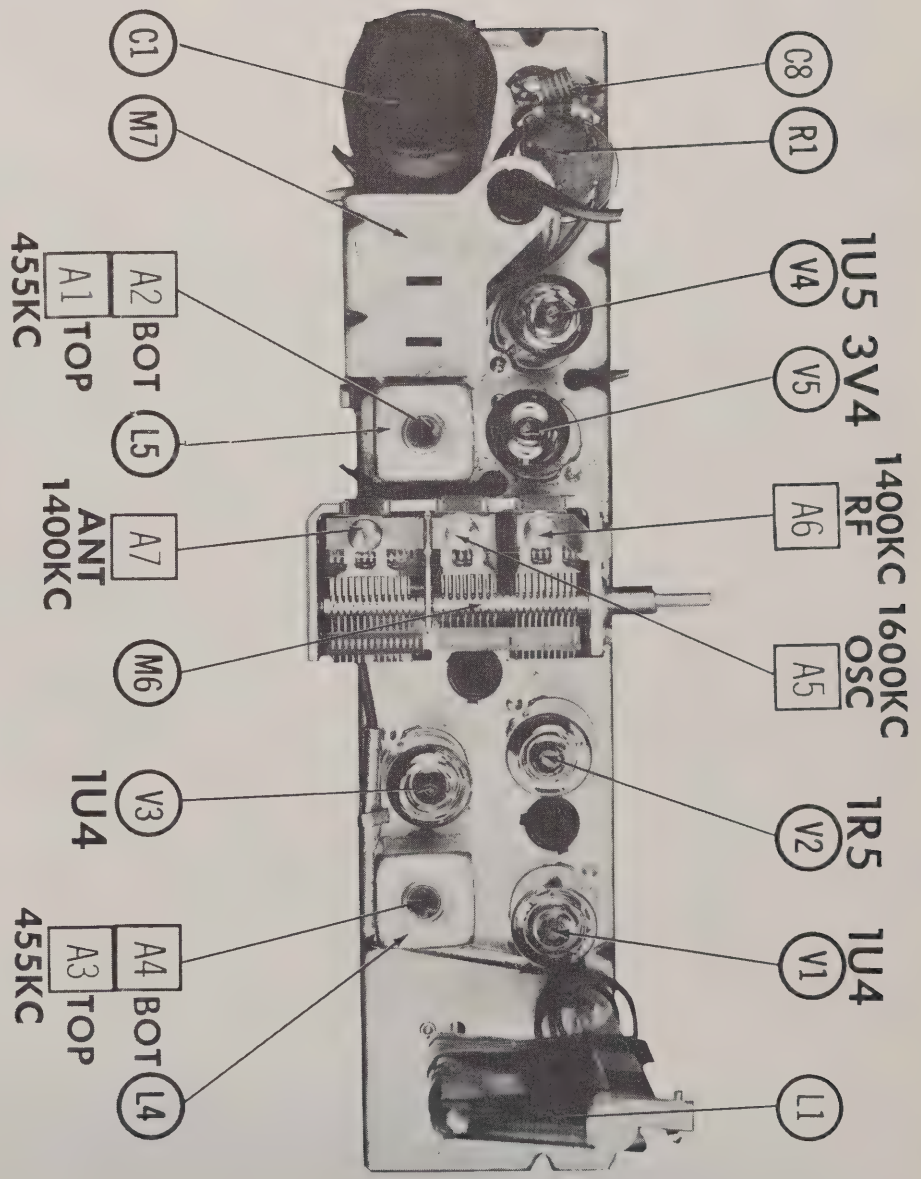
RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		ZENITH PART No.	NOTES
	OHMS	WATT		
R2	1Meg		63-1912	
R3	15K		63-1835	
R4	1Meg		63-1912	
R5	100K		63-1870	
R6	1000Ω		63-1785	
R7	6.8Meg		63-1947	
R8	470K		63-1897	
R9	47K		63-1856	
R10	3.3Meg		63-1933	
R11	4.7Meg		63-1940	
R12	1Meg		63-1912	

ITEM No.	RATING		ZENITH PART No.	NOTES
	OHMS	WATT		
R13	4.7Meg		63-1940	
R14	2.2Meg		63-1926	
R15	22K		63-1842	
R16	1000Ω		63-1785	
R17	220Ω		63-1757	
R18	180Ω	4	63-2821	
R19	1750Ω	4	63-3981	
R20	39K		63-1852	
R21	8.2Meg		63-1950	
R22	680Ω		63-1778	

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	ZENITH PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	9700Ω	3-4Ω	95-1548		A-2998①	A-3329 ①	24S83 ①	S-11X ①	①Bend Ears Down.

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	ZENITH PART No.	QUAM PART No.	
SP1	4"	PM	3-4Ω	49-822	4A1	

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA				NOTES
		ZENITH PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L1	Loop Stick	S-41438				
L2	RF Coil	S-41304	14-1072	BC-388*	70-RF*	
L3	Osc. Coil	S-41303	14-1074	BC-387*	70-OSC.*	
L4	Input IF	95-1547	16-6780	BC-356	13-PC7	
L5	Output IF	95-1423				

* Fabricate mtg, disregard tap.

SELENIUM RECTIFIER

ITEM No.	RATING	REPLACEMENT DATA				NOTES
	CURRENT (Measured)	ZENITH PART No.	FEDERAL PART No.	INTERNATIONAL PART No.	SARKES TARZIAN PART No.	
M1	.060A	212-5	1003A	RS075	75	

BATTERIES

ITEM No.	VOLTAGE	ZENITH PART No.	REPLACEMENT DATA								NOTES
			BURGESS		EVEREADY		MALLORY		RAY-O-VAC		
			"A"	"B"	"A"	"B"	"A"	"B"	"A"	"B"	
M2	1 1/2V	Z-8	Z		915		M-15		7-R		
M3	9V	Z-276	D6		276		M-1603		1603		
M4	90V	Z-495		P60		495		M-214			

MISCELLANEOUS

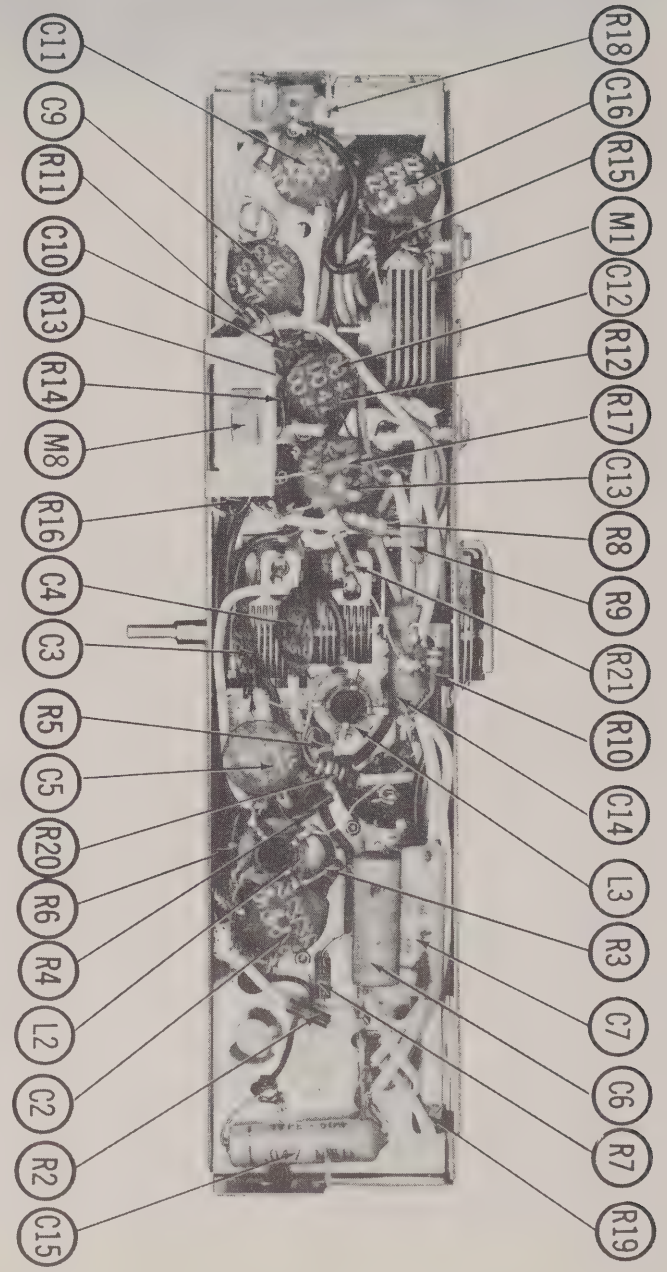
ITEM No.	PART NAME	ZENITH PART No.	NOTES
M5	Pilot Lamp	100-211	#201
M6	Tuning Cap.	22-2956	3 Gang (Ant. 20-355 MMF, RF 13-275 MMF, Osc. 15-110 MMF)
M7	Switch	85-587	Power Changeover (Rotary Wafer Type)
M8	Switch	S-41385	Dial Light (Slide Type SPST)

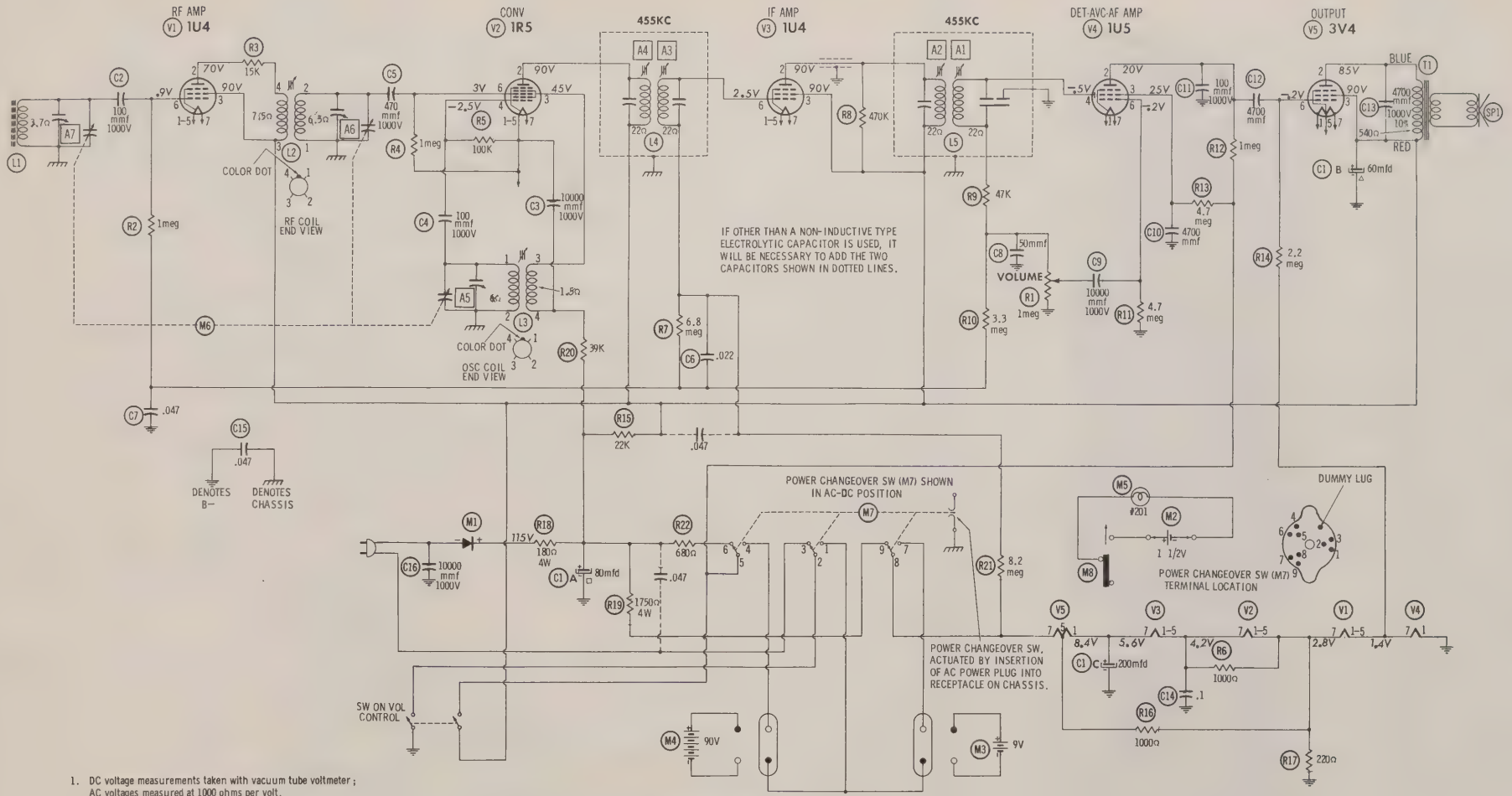
CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	46-1745	Tuning, Model A504Y
Knob	46-1746	Tuning, Model A504F
Knob	46-1758	On-Off-Volume
Knob	46-1764	Antenna
Cabinet	14-2185	Front Section
Cabinet	14-2196	Rear Section, Model A504Y
Cabinet	14-2197	Rear Section, Model A504F
Cabinet Handle	36-173	Model A504Y
Cabinet Handle	36-174	Model A504F
Dial Scale Assembly	S-41466	
Dial Pointer	59-323	

CHASSIS—BOTTOM VIEW





1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
5. Volume control at maximum. no signal apllied for voltage measurements.

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM.

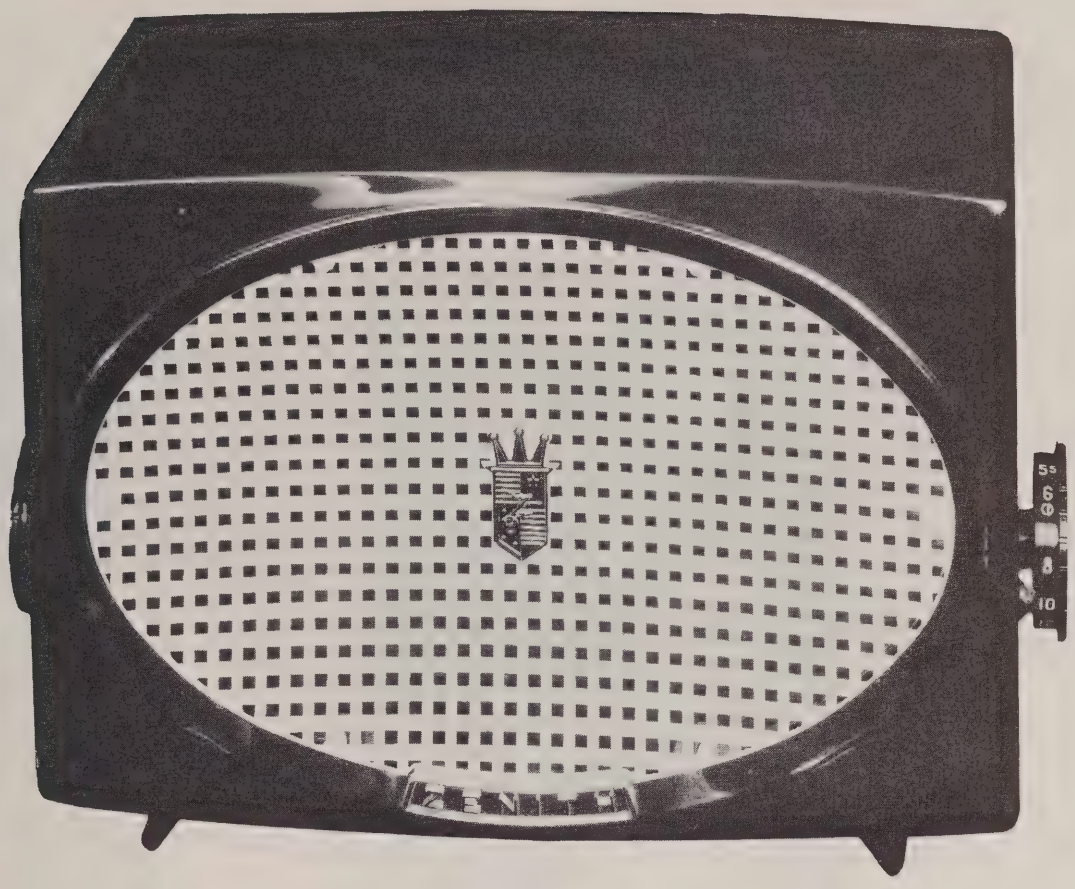
RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V1	1U4	•	† 16K	† 850Ω	TP	•	5.3Meg	•
V2	1R5	•	† 870Ω	† 39K	100K	•	1Meg	•
V3	1U4	•	† 870Ω	† 870Ω	TP	•	11Meg	•
V4	1U5	•	† 1Meg	† 4.7Meg	1Meg	TP	4.7Meg	•
V5	3V4	•	† 1400Ω	† 850Ω	TP	•	2.2Meg	•

• DO NOT USE OHMMETER TO MEASURE FILAMENT RESISTANCE.
† MEASURED FROM OUTPUT OF M1.
TP TIE POINT.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958

ZENITH
MODELS A513F, G, R (Ch. 5A01)



ZENITH
MODELS A513F, G, R (Ch. 5A01)

TRADE NAME	Zenith Models A513F, A513G, A513R (Ch. 5A01)
MANUFACTURER	Zenith Radio Corp., 6001 Dickens Ave., Chicago 39, Illinois
TYPE SET	AC-DC Operated AM Receiver
TUBES (Five)	Types 12BE6 Converter, 12BA6 IF Amplifier, 12AV6 (or) 12AT6 Det.-AVC-AF Amp., 50C5 Output, 35W4 Rectifier
POWER SUPPLY	110-120 Volts AC-DC
RATING	.27 Amp. @ 117 Volts AC (27 Watts)
TUNING RANGE—BROADCAST	535KC-1620KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use isolation transformer, if available. If not, connect a .1MFD capacitor in series with low side of signal generator and B-. Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.5MFD	High side to pin 7 (grid) of 12BE6 (V1). Low side to B-.	455KC (400~ Mod)	600KC	Across voice coil	A1, A2, A3, A4	Adjust for maximum output. (Tuning wrench Zenith Part #68-19 may be used.)
2.		Loop	1600KC	1600KC	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.		"	1400KC	1400KC	"	A6	"

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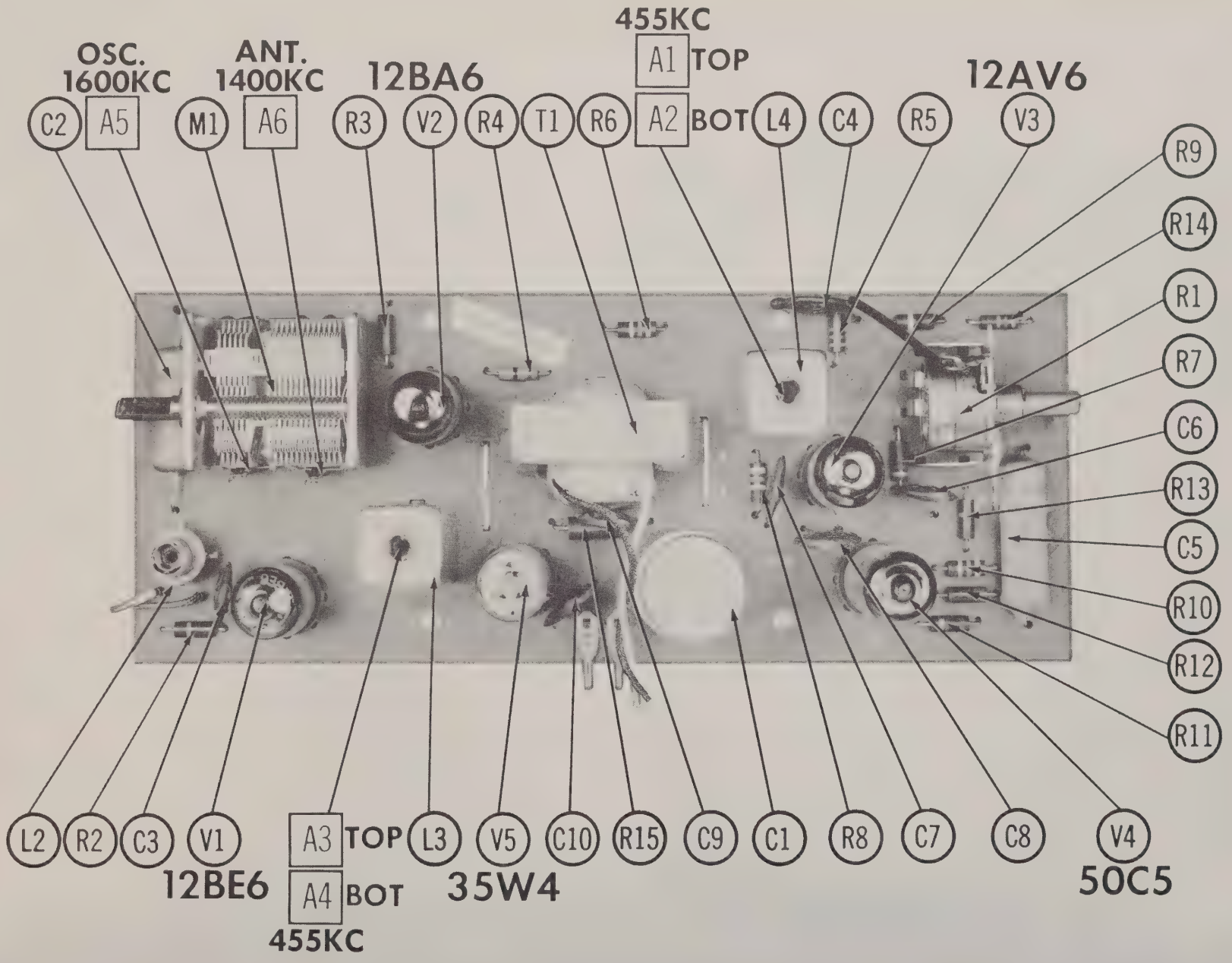
FOLDER 14



CHASSIS TOP VIEW

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	Converter	12BE6	
V2	IF Amplifier	12BA6	
V3	Det. -AVC-AF Amp.	12AV6	Note 1
V4	Output	50C5	
V5	Rectifier	35W4	

Note 1. Some versions may use a 12AT6 in this application.

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA ZENITH PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	■80	150	22-2710	PRS150V8040	BBRD8415	TCD498	TDLD-11	MTD-303	R2530 *
B	▲40	150							

* Non Catalog Item

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA ZENITH PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C2	.047	200	22-2792	P288N-047	DF-503	CUB2S47		GEM-4147	2TM-S47	
C3	100	1000	22-5	HVD-15-100	DD-101		HD15-100		5GA-T1	
C4	3300		22-11	BPD-0033	DD-332	BYA10D33	ED-0033	UC-5233	5GA-D33	
C5	.1	200	22-2780	P288N-1	DF-104	CUB2P1		GEM-201	2TM-P1	
C6	10000	1000	22-3			BYA10S1M				
C7	470	1000	22-6	HVD-15-470	DD-471	BYA10T47	HD15-470	DC30347	5GA-T47	
C8	10000	1000	22-3			BYA10S1M				
C9	10000	1000	22-3			BYA10S1M				
C10	10000	1000	22-3			BYA10S1M				

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA ZENITH PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	1.5Meg	½	63-3601					Volume, Tap at 600K
B	Switch							

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	ZENITH PART No.	NOTES
R2	22K		63-1842	
R3	2.2Meg		63-1926	
R4	68Ω		63-1737	
R5	47K		63-1856	
R6	470K		63-1898	
R7	4.7Meg		63-1940	
R8	470K		63-1898	
R9	100K		63-1870	
R10	470K		63-1898	
R11	150Ω		63-1750	
R12	2200Ω		63-1800	
R13	22K		63-1842	
R14	1800Ω		63-1796	
R15	1000Ω	1	63-1574	

PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA ZENITH PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T1	2300Ω	3-4Ω	95-1457	Z1001 ①	A-2928 ①	A-3876 ①	22S46 ①	S-1X ①	① Bend ears down

SPEAKER

ITEM No.	TYPE SIZE	TYPE FIELD	TYPE V. C. IMP.	REPLACEMENT DATA ZENITH PART No.	REPLACEMENT DATA QUAM PART No.	NOTES
SP1	6" X 9"	PM	3-4Ω	49-787	69A2	

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA ZENITH PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	NOTES
L1	Loop Antenna	S-23663				Includes cabinet back
L2	Osc. Coil	S-23656				
L3	Input IF	95-1501	16-6758	BC-356	13-PC1	
L4	Output IF	95-1502			13-PC6	

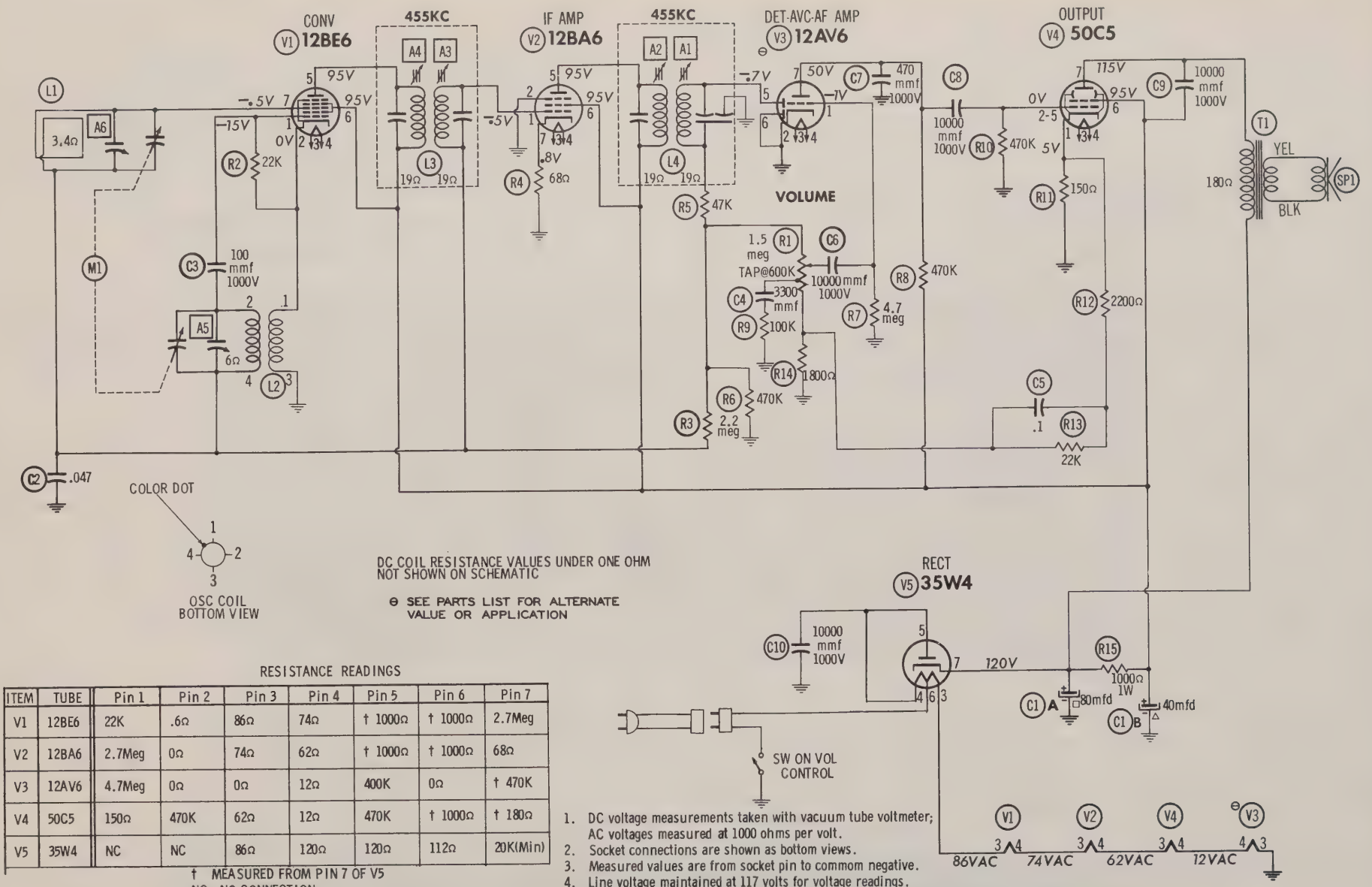
MISCELLANEOUS

ITEM No.	PART NAME	ZENITH PART No.	NOTES
M1	Tuning Cap.	22-2717	2 Gang

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	46-1507	Dial, Model A513R
Knob	46-1822	Dial, Model A513G
Knob	46-1505	Dial, Model A513F
Knob	46-1511	On-Off-Volume, Model A513R
Knob	46-1823	On-Off-Volume, Model A513G
Knob	46-1509	On-Off-Volume, Model A513F
Cabinet	S-41826	Includes Escutcheon Assembly, Model A513R
Cabinet	S-41825	Includes Escutcheon Assembly, Model A513G
Cabinet	S-41824	Includes Escutcheon Assembly, Model A513F



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V1	12BE6	22K	.6Ω	86Ω	74Ω	† 1000Ω	† 1000Ω	2.7Meg
V2	12BA6	2.7Meg	0Ω	74Ω	62Ω	† 1000Ω	† 1000Ω	68Ω
V3	12AV6	4.7Meg	0Ω	0Ω	12Ω	400K	0Ω	† 470K
V4	50C5	150Ω	470K	62Ω	12Ω	470K	† 1000Ω	† 180Ω
V5	35W4	NC	NC	86Ω	120Ω	120Ω	112Ω	20K(Min)

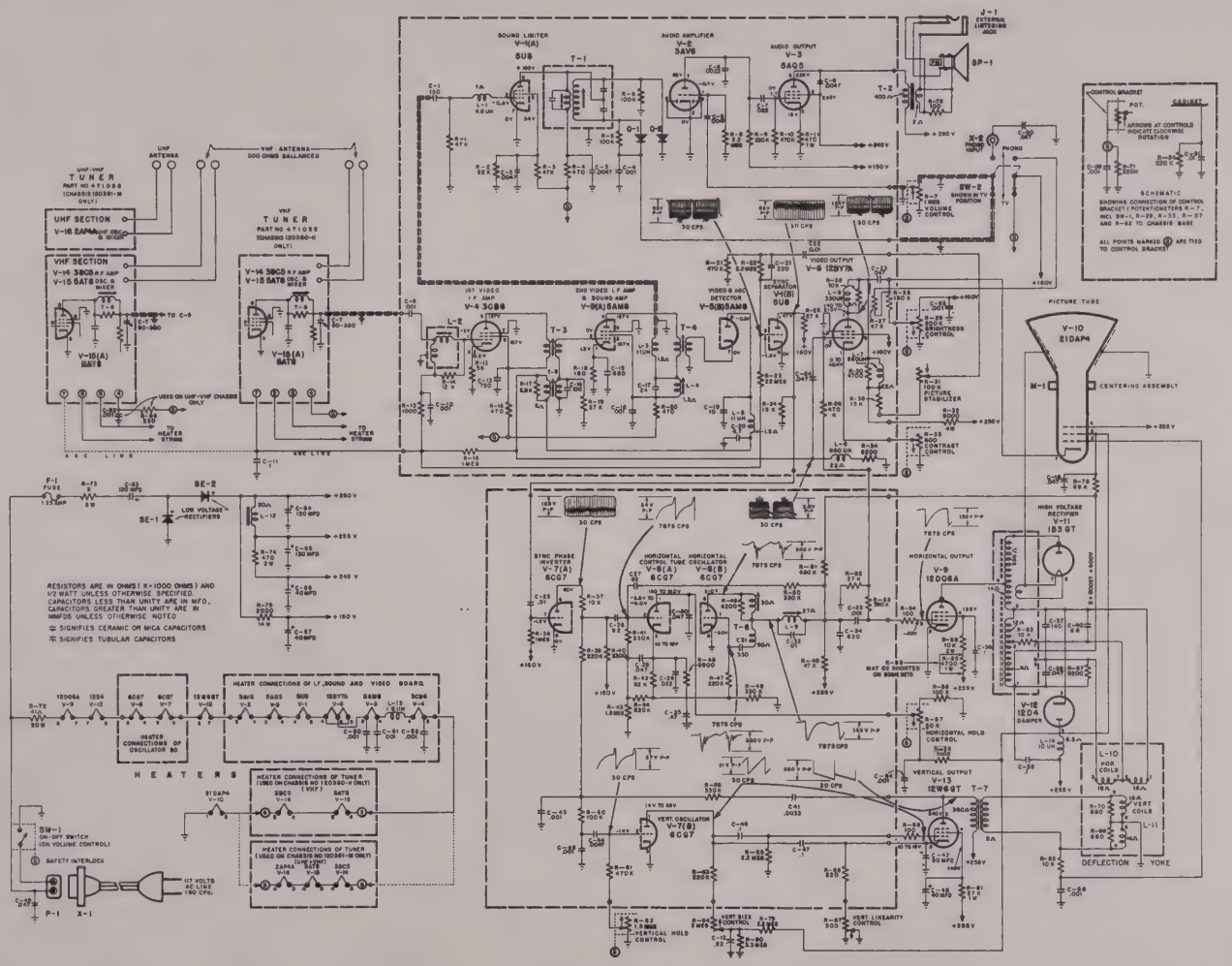
† MEASURED FROM PIN 7 OF V5
NC NO CONNECTION

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to commom negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958

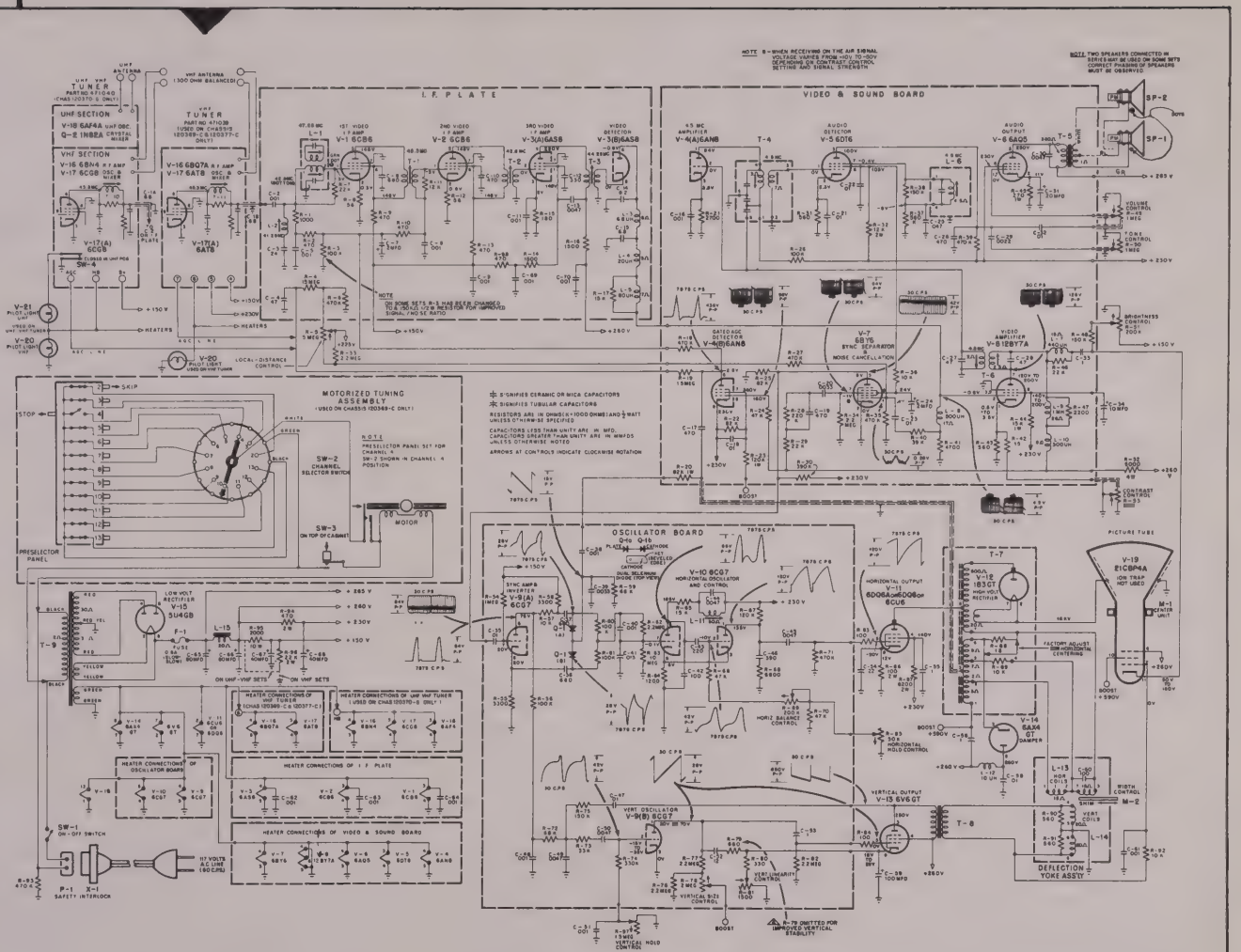
386-14

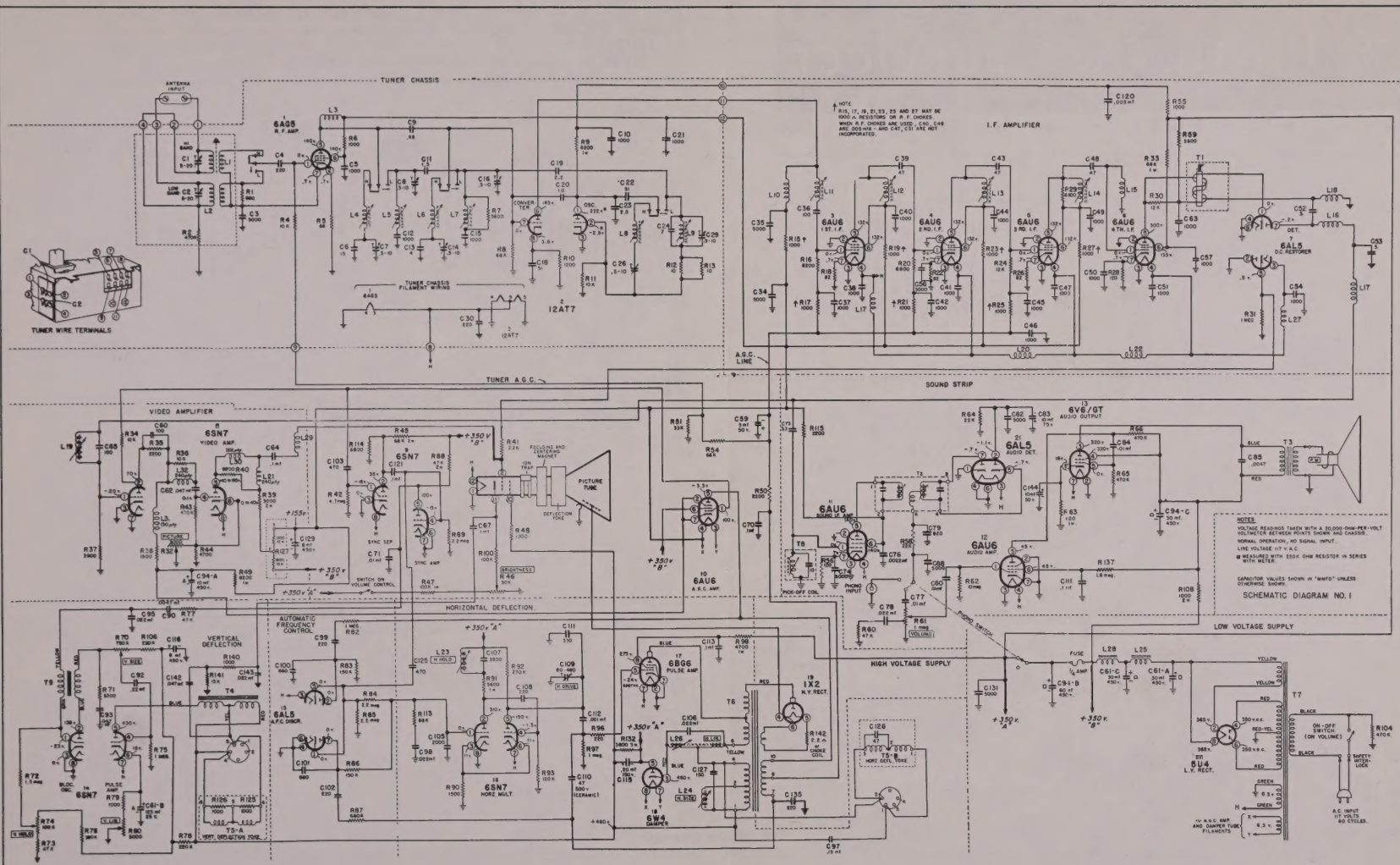
EMERSON MODELS	CHASSIS
1282	120380H
1283	120381M
1284	120380H
1285	120381M
1286	120388H
1287	120389M


UHF-VHF TUNER
PART NO 471088
(CHASSIS 120381-M ONLY)
UHF SECTION
V-16 2AP4
VHF SECTION
V-14 3BC8
V-15 6AT8
VHF TUNER
PART NO 471089
(CHASSIS 120380-H ONLY)
V-16(A) 6AT8
V-16(B) 6U8
SOUND LIMITER V-1(A) 6U8
AUDIO AMPLIFIER V-2 3AV6
AUDIO OUTPUT V-3 6AQ5
1ST VIDEO I.F. AMP V-4 3GB6
2ND VIDEO I.F. AMP & SOUND AMP V-5(A) 6AM8
VIDEO & AGC DETECTOR V-5(B) 6AM8
VIDEO OUTPUT V-6 12BY7A
PICTURE TUBE V-10 21DAP4
HIGH VOLTAGE RECTIFIER V-11 1B3GT
SYNC PHASE INVERTER V-7(A) 6CG7
HORIZONTAL OSCILLATOR V-8(A) 6CG7
HORIZONTAL OUTPUT V-9 12DG6A
DAMPER V-12 1E04
VERTICAL OSCILLATOR V-7(B) 6CG7
VERTICAL OUTPUT V-13 12W6GT
SW-1 ON-OFF SWITCH (ON VOLUME CONTROL)
SW-2 SHOWN IN TV POSITION
SE-1 LOW VOLTAGE RECTIFIERS
SE-2
RESISTORS ARE IN OHMS (K=1000 OHMS) AND 1/2 WATT UNLESS OTHERWISE SPECIFIED.
CAPACITORS LESS THAN UNITY ARE IN MFD.
CAPACITORS GREATER THAN UNITY ARE IN MMFDS UNLESS OTHERWISE NOTED
SIGNIFIES CERAMIC OR MICA CAPACITORS
SIGNIFIES TUBULAR CAPACITORS
HEATERS
HEATER CONNECTIONS OF OSCILLATOR 80
HEATER CONNECTIONS OF TUNER (USED ON CHASSIS NO 120380-H ONLY) (VHF)
HEATER CONNECTIONS OF TUNER (USED ON CHASSIS NO 120381-M ONLY) (UHF)
117 VOLTS AC LINE (60 CPS)
CONTROL BRACKET
CABINET
SCHEMATIC
ALL POINTS MARKED ⊕ ARE TIED TO CONTROL BRACKET

SCHEMATIC COURTESY OF EMERSON RADIO & TELEVISION CO.

EMERSON MODELS	CHASSIS
1420	120377C
1421	120370G
1424	120377C
1425	120370G
1426	120369C
1428	120369C





Airline Model 25BR-3048B

Schematic Diagram Courtesy of Montgomery Ward & Co.

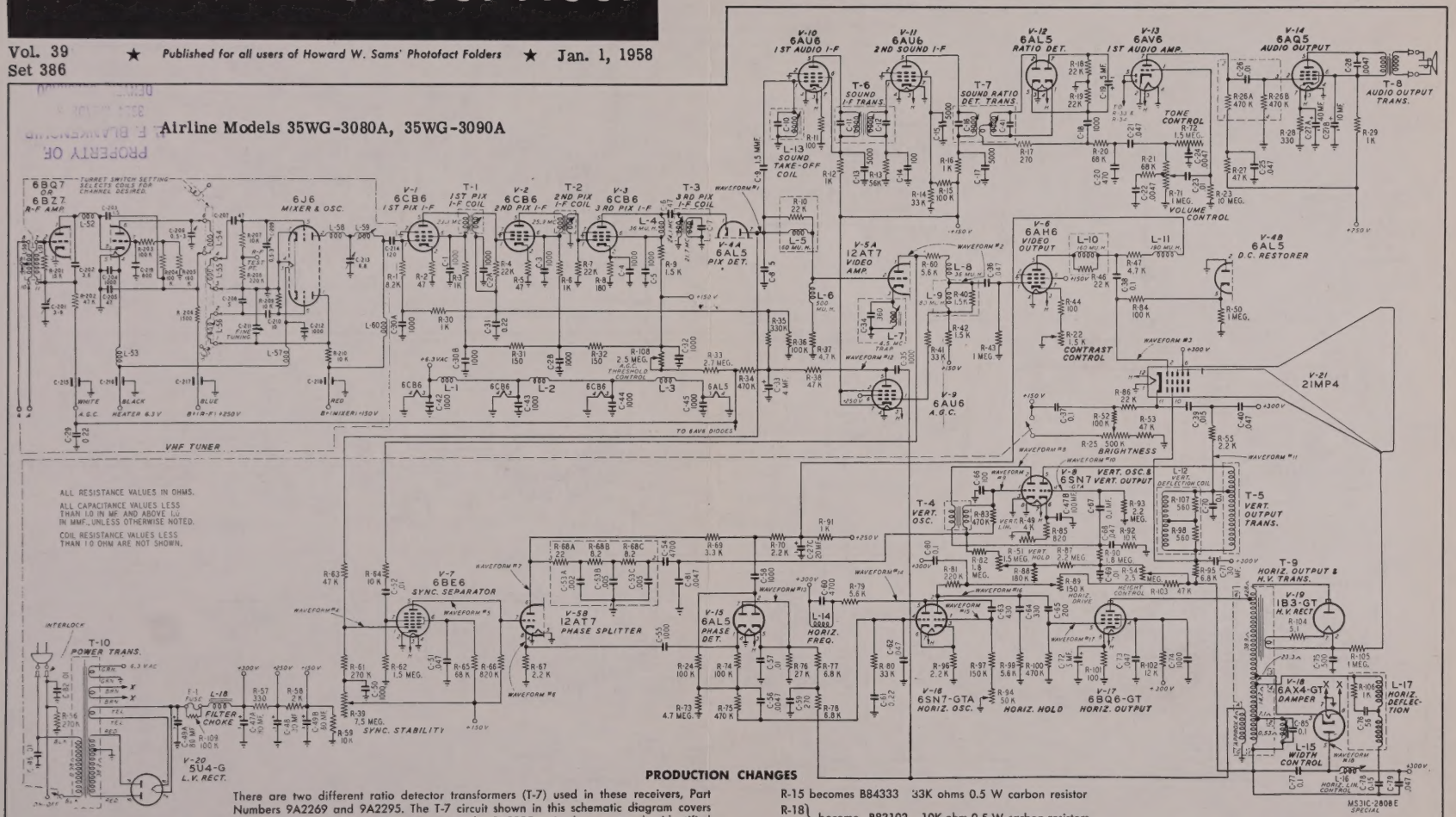
The PHOTOFACT Servicer

Vol. 39
Set 386

★ *Published for all users of Howard W. Sams' Photofact Folders* ★ Jan. 1, 1958

The service information in this Servicer provides data on models which we have been unable to present in PHOTOFACT Folders. The receivers are not in current production; a requirement for PHOTOFACT coverage, and we are therefore presenting schematics and supplementary data that will be of assistance when servicing these models.

Airline Models 35WG-3080A, 35WG-3090A


V-10 6AU6 1ST AUDIO I-F
V-11 6AU6 2ND SOUND I-F
V-12 6AL5 RATIO DET.
V-13 6AV6 1ST AUDIO AMP.
V-14 6AQ5 AUDIO OUTPUT
T-6 SOUND I-F TRANS.
T-7 SOUND RATIO DET. TRANS.
T-8 AUDIO OUTPUT TRANS.
L-13 SOUND TAKE-OFF COIL
TONE CONTROL
VOLUME CONTROL
6BQ7 6BZ7 R-F AMP.
6J6 MIXER & OSC.
V-1 6CB6 1ST PIX I-F
V-2 6CB6 2ND PIX I-F
V-3 6CB6 3RD PIX I-F
T-1 1ST PIX I-F COIL
T-2 2ND PIX I-F COIL
T-3 3RD PIX I-F COIL
V-4A 6AL5 PIX DET.
V-5A 12AT7 VIDEO AMP.
V-6 6AH6 VIDEO OUTPUT
V-4B 6AL5 D.C. RESTORER
CONTRAST CONTROL
BRIGHTNESS
V-21 21MP4
V-9 6AU6 A.G.C.
VHF TUNER
ALL RESISTANCE VALUES IN OHMS.
ALL CAPACITANCE VALUES LESS THAN 1.0 IN MF AND ABOVE IN MMF, UNLESS OTHERWISE NOTED.
COIL RESISTANCE VALUES LESS THAN 1.0 OHM ARE NOT SHOWN.
V-7 6BE6 SYNC. SEPARATOR
V-5B 12AT7 PHASE SPLITTER
V-15 6AL5 PHASE DET.
T-4 VERT. OSC.
V-8 6SN7 VERT. OSC. & VERT. OUTPUT
T-5 VERT. OUTPUT TRANS.
T-9 HORIZ. OUTPUT & H.V. TRANS.
V-19 1B3-GT H.V. RECT.
T-10 POWER TRANS.
V-20 5U4-G L.V. RECT.
L-18 FILTER CHOKE
SYNC. STABILITY
L-14 HORIZ. FREQ.
V-16 6SN7-GTA HORIZ. OSC.
HORIZ. HOLD
V-17 6BQ6-GT HORIZ. OUTPUT
V-18 6AX4-GT DAMPER
L-17 HORIZ. DEFLECTION
L-15 WIDTH CONTROL
L-16 HORIZ. LIN. CONTROL
INTERLOCK
TO 6AV6 DIODES
MS3IC-2808E SPECIAL

There are two different ratio detector transformers (T-7) used in these receivers, Part Numbers 9A2269 and 9A2295. The T-7 circuit shown in this schematic diagram covers the 9A2269 ratio detector. Receivers using the 9A2295 ratio detector can be identified by the following changes:

C-18 becomes 47X570 330 mmf molded mica condenser

PRODUCTION CHANGES

R-15 becomes B84333 33K ohms 0.5 W carbon resistor

R-18, R-19 become B83103 10K ohm 0.5 W carbon resistors

In addition, the 9A2295 ratio detector has terminals with numerical identification (1, 2, 3 etc.) whereas the 9A2269 ratio detector has terminals with alphabetical identification (A, B, C etc.)

Schematic Diagram Courtesy of Montgomery Ward & Co.